

The Journal

OF THE

Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

Vol. XVIII

GRAND RAPIDS, MICHIGAN, OCTOBER, 1919

No. 10

Original Articles

TABES DORSALIS.*

FRANK R. STARKEY, M.D.
DETROIT, MICH.

In this paper it is not my intention to go into the literature of the subject, for I believe this always to be tedious at a meeting of this kind, but rather to express my personal views on the subject above and will not even go fully into the matter from this angle for I have done so in a previous article published in the *Medical Record* of March, 1916.

My object here is to try to impress upon you that tabes can no longer be looked upon as simply a condition confined to the posterior columns of the spinal cord but must be viewed in a much broader sense. The *spirachaeta pallida* may attack any structure of the human economy and the disease or symptom complex expresses the function of the tissues affected. Any function of the nervous system, from the simplest reflexes to the highest and most intricate intellectual processes, may be disturbed by syphilitic infection of the nervous system and the diverse phenomena, which may be the sequence, can only be constituted into a disease by the most arbitrary methods. Although tabes and paresis are spoken of as diseases, in reality we should consider but two factors in the morbid manifestations of syphilis of the nervous system, namely; the character of the infection and the site of its anatomical location. The consequent symptomatology necessarily expresses the physiology of the structures involved. However, tabes is a convenient term to express the fact that the columns of Goll and Burdack are bearing the principal brunt of the destructive process, while by the term general paresis of the insane we signify that the cerebral cortex is chiefly attacked, with involvement of the higher centers thereof. Necessarily in syphilitic pro-

cesses of the nervous system the form assumed by the disease is determined by the site of the destruction, and the course it runs depends upon the natural history of the pathological process. However, since Sherrington gave us our present ideas of the integrative action of the nervous system we know that we cannot look upon an isolated tract or system of the nervous mechanism as being only involved, for we know that by this integrative action the nervous apparatus as a whole is disturbed and this is particularly true in tabes. Not only is the sensory mechanism upset but the paleokinetic and even the neokinetic apparatus is involved, and the cerebellum, which is the organ that controls muscle tonus and the synergies of movement and is closely related to posture and equilibrium, does not exercise its normal function as manifested by the marked hypotonus and asynergia of tabes. And even the autonomic and sympathetic systems show considerable involvement which is discernible by trophic and vasomotor changes. The peripheral nerves, both motor and sensory, and the glands of internal secretion, particularly the pituitary, thyroid and the sex glands, are frequently disturbed in their function in a manner characteristic of this disease. Therefore, we would look upon tabes rather as a somatic nervous disease than simply one confined to the posterior columns. Tabes attacks persons of almost all ages and of all races. It is, however, very rare in the young and unusual late in life. Its most frequent time of incidence is between the ages of twenty and forty-five. The colored races seem less susceptible than the white and in proportion to the prevalence of syphilis it seems to be comparatively rare among the Chinese and Japanese.

ETIOLOGY.

Although the exact etiological factor has been in dispute from time to time, it is now generally accepted and dogmatically asserted that syphilis alone is the cause, yet there are very many cases

*Read before Michigan State Medical Society, May 21, 1919.

of tabes in which the history of syphilis cannot be obtained and no laboratory or other manifestations of the infection determined. It has been demonstrated that lesions of the kidney and other tissues, due to focal infection at a distance, cannot be distinguished pathologically from syphilitic lesions in the same tissues. So, that although we are still confident that 100 per cent. of cases are due to syphilis, notwithstanding absolute negative findings in this regard in a considerable percentage, it may be that, as time goes on and we progress in our knowledge and laboratory technic, we may deviate from this very positive view and be willing to admit that other forms of infection than syphilitic may be the determining cause. Paralysis agitans is one of the diseases concerning the pathology of which we have most recently altered our ideas, thanks, particularly, to the work of J. Ramsey Hunt. The history of the evolution of our knowledge of tabes is replete with complete reversals of opinion as to the etiology of this condition. Such distinguished neurologists as Duchenne, Leyden, Wunderlich, Moebius, Erb and Fournier believed at one time that tabes was due to fatigue, chill, excessive venery or trauma and they were just as positive in their beliefs as we are in ours today, and as they were the leaders and moulders of thought in medical matters of their times, their views were accepted and as dogmatically reiterated as the present conception of syphilis being the one etiological factor. It was due to the research of two of these gentlemen, in particular, namely: Moebius and Erb, who came to believe in the specific role of syphilis in relation to tabes that our present attitude came into vogue and this present conception has been greatly strengthened by the work of Noguchi and Moore, who found the spirochete in the tissues of the cord in a very few instances and their work has been confirmed by many other competent observers. However, other organisms, even the colon bacillus, have been found in the tissues of the central nervous system and we know that the pathogenicity and even the morphology of various strains of bacteria are subject to transmutability, so that I think it has not been thoroughly proven that the posterior columns of the cord are vulnerable to the spirochete only and it would not surprise me at all if the future would show us that other organisms, especially those responsible for focal infection, may produce lesions of the posterior columns and other tissues of the nervous system which cannot be distinguished from those of the spirochete. This

thought is dropped at this point simply as a hint for future investigation, for I am fully aware that there is not now sufficient evidence to establish it as a fact. The mechanism of invasion is believed now to be through the spinal fluid and the initial phenomena are the same as would be manifested in other tissues in similar circumstances, namely: oedema, then granular degeneration, then fatty degeneration, then glia formation. That it is a primary degeneration due to a toxic process, involving the columns of Goll and Burdach alone does not seem rational nor conform to our knowledge of syphilitic processes.

SYMPTOMATOLOGY.

The symptomatology of tabes is by no means uniform in its onset. The first manifestation may be optic atrophy or ptosis, paralysis of extrinsic muscles of the eye with consequent diplopia; or the first symptom may be of the vegetative nervous system with usual pupillary changes. Sensory symptoms are not infrequently the first to manifest themselves. Lightning pains which are of an atrocious character, coming on at any time or place without warning and very transitory in character, not accompanied by redness, swelling or increased temperature of the part or tenderness to pressure or passive movement, but are increased by sneezing, coughing, straining at stool or anything that temporarily increases the blood pressure, the patient has an interval of complete absence of pain subsequent to the paroxysm; parasthesias of various kinds; numbness of the extremities; sensation of walking on cushions or loss of sense of position, may be the first to arrest the patient's attention and cause him to seek medical attention. Such a case I recently saw in which the patient complained of an itchy, burning sensation about the waist which caused him to consult numerous dermatologists, but upon examination I found that he had no skin disease but had the classical symptoms of tabes, although in a mild degree, without ataxia. Motor disturbances may be the first to manifest themselves; inability to walk in the dark or with the eyes closed or to dance, may be the first indication that attracts the patient's attention. Patient stands with feet far apart to give wide base, lifts his feet too high and brings them down with undue force, when walking fixes his eyes on his feet; disturbances of vesical or rectal sphincters or the erectal power is sometimes the very first symptom. Crises of various kinds, gastric, with

or without vomiting, vesical, rectal or ocular, may be the initial symptom. Vomiting during these gastric crises may be of such intense and prolonged character as to cause the patient to die of inanition, or to lose much of his body weight, as in a case in which I am interested, he lost one-half his body weight, going from 180 to 90 pounds, due to persistent vomiting. He regained it again upon relief of this symptom. Trophic changes may come on early, Charcot joint, especially of the lower extremities, which frequently goes on until great displacement occurs making walking impossible; ulcers of the palmar or plantar surfaces; fragility of the bones; blueness and redness, with lowered temperature, of the extremities, are manifestations of this nature. Mental symptoms, as apathy, irritability or euphoria, or morbid anxiety or fear, frequently develop early and the subsequent course of the case is strongly influenced by the mental attitude.

DIAGNOSIS.

There is no other disease of the nervous system in which error or diagnosis is so frequently made. Almost any nervous disturbance of locomotion is commonly diagnosed locomotor ataxia and the lightning pains are not infrequently diagnosed as neuritis or rheumatism. The crises are commonly mistaken for other pathological processes, such as gastric ulcer, gall stones or appendicitis. I have seen many cases in which the patient underwent several operations, as many as seven, due to these faulty diagnoses. With ordinary skill and care there is scarcely any excuse for this, for careful examination will always elicit either the presence of syphilis or some of the cardinal diagnostic symptoms of tabes, which are, of course especially, loss of pupillary reflex to light with retention of it to accommodation, irregularity or inequality of the pupils; ataxia; loss of station and absence of patellar reflex. Gastric ulcer can be eliminated by the history, absence of positive signs of syphilis, analysis of the stomach contents and behavior and incidence of the pain in relation to the taking of food, the absence of blood in the stool; gall stones, by the absence of jaundice or other signs significant of the occlusion of the bile passages or presence in the duodenum of products of cholecystitis, character of the pain is less sudden in onset and disappearance and apt to leave soreness following it, search of the stool will often reveal presence of gall stones; appendicitis, frequently associated with rise in temperature, rapid pulse,

leucocytosis, especially increase of polymorphonuclears if acute and lymphocytes if chronic, rigidity of abdominal muscles of the right side and with special intensity over the ileocecal region, greatest intensity of pain localized at McBurney's point; rheumatism, is accompanied by redness and swelling of joints or soreness of muscles with febrile reaction and absence of positive signs of syphilis or tabes and pain increased by motion; neuritis, absence of classical signs of tabes, presence of history of poisoning by alcohol, the metallic poisons or infection, pain upon pressure over distribution of nerves involved, presence of herpes zoster, limitation of motion, muscular atrophy; pernicious anemia can be eliminated by the history and the blood count, the symptoms are those of postero-lateral sclerosis or diffuse myelitis and the disease is usually fatal within two years; hysteria, by the presence of stigmata of this neurosis and the absence of classical sign of tabes.

PROGNOSIS.

As to this we must first understand what we mean by tabes and what we mean by cure. If we accept as our concept of tabes the old definition of posterior spinal sclerosis we cannot hope for any results from treatment, because, once the posterior columns of the cord are destroyed they cannot be restored. In that sense the condition is absolutely hopeless and incurable. If, however, we conceive of it as it is in the beginning an exudative or infiltrative process with oedema interfering with function we can be more hopeful in our prognosis, for in this stage the disease is amenable to treatment and complete restoration of the tissues and their function can be looked for. And, again, if we appreciate the psychology of this condition and realize the important role played by fear and anxiety, we have a decidedly more hopeful outlook and can speak with assurance of benefiting a very large percentage of our patients.

TREATMENT, PROPHYLAXIS.

All that can be said in this regard is that means should be employed to prevent syphilitic infection. The use of anti-syphilitic early and thorough treatment is usually strongly urged as a prophylactic means, but unfortunately, no matter how early and how thorough anti-syphilitic treatment is instituted it does not seem to have any specific bearing on the subsequent development of tabes, but what I believe to be of more importance is the establishment and

maintenance of the maximum vital resistance on the part of the patient. This is a matter that has been sadly neglected. The usual procedure is to fill the patient with anti-luetic treatment without any particular regard to his general health. This question of vital resistance is now believed to have an important relation to the fact that tabes develops so late in syphilitics and upon close investigation we can frequently find the initial tabetic symptoms developed during a period of low vital resistance. In fact the patient will frequently point to a certain incident in his career which lowered his metabolism, as an accident or overwork or shock and will be unwilling to believe that his symptoms are to be attributed to anything not associated with this particular incident or period. Great liberties have been taken in the administration of anti-syphilitic remedies in the treatment of this disease, especially since the work of Marienaeo and Wechselmann. Intravenous and intraspinal administration of the organic arsenical and mercurial preparations have attained such wide vogue that they are now used without special thought or analysis and are urged with great freedom as being entirely harmless. This, however, is not the fact for the literature records deplorable accidents following this form of treatment and many other such calamities occur which never reach the literature. There is at present in the Receiving Hospital of this City a case that was of rather benign type, patient being able to get about and attend to his business with little impediment, until he submitted himself to intraspinal treatment which was followed by a diffuse myelitis and he was brought to the Receiving Hospital in a condition of complete paralysis from the cervical region down, including bladder and rectum, accompanied by general muscular atrophy. My own method of treatment is to first pay especial attention to building up the patient's general metabolism and natural resistance and, if I believe an active syphilitic condition to be present, institute anti-luetic treatment, especially by mercurial inunctions, this I believe to be the safest and most satisfactory procedure toward this particular end. For the ataxia, psychotherapy, opotherapy, and exercises, both mental and physical, are of the greatest importance. The personality of the physician and the personality of the patient each play an important role in this connection. It is absolutely necessary that the physician have and maintain the entire confidence and co-operation of the patient and the

patient must be of sufficient intelligence to understand and carry out the directions of the physician. Fear is a very important element in the development and persistence of the ataxic symptoms and is responsible for much of the asynergia exhibited in these cases. Some patients, as soon as they develop the first symptoms of ataxia, become panicky and take to their beds and remain there for long periods. One case I saw took to his bed, almost immediately after discovering he could not walk in the dark or stand with eyes closed, and remained there for more than twenty years. Exercise, both mental and physical, with a view to developing precision and accuracy in thinking and moving are of much usefulness. The system of Fraenkel, for many years, was used with good results but has lately been superseded, to considerable extent, by the method devised by Maloney, who has his patient perform as rapidly as possible certain mental acts, as adding columns of figures, picking out certain letters or numbers or words on a large card and he has his patients perform their physical exercises blindfolded, upon the theory that the blind tabetics seem to be less ataxic than those depending upon their vision to guide them. The element of fear in destroying equilibrium can be well illustrated by an example I frequently give, namely: take a four inch plank twenty feet long and place it on the floor. Any ordinary individual could readily enough walk it, forward or backward, with his eyes opened or closed, but suspend that same plank from a ten story window and how many of us could negotiate it? The physics and mechanics of the two operations would be identical, the only difference would be the element of fear. Another illustration of this point is that many patients can walk much better with their eyes closed than with them blindfolded. One patient, whom I expected to exhibit here this afternoon, I asked what the reason for this was; he answered, "Because I know that when my eyes are not blindfolded I can open them whenever I want to and thus save myself from falling." In regard to physical exercises, after gaining the confidence and co-operation of the patient, blindfold him and have him supine on a table and instruct him to relax all of his muscles. This takes continued practice and must be persevered in until absolute relaxation takes place, then passive movements are instituted commencing with the head and extending to the arms and legs, then the patient is asked to concentrate his mind on the position

of the extremities in space and they are passively placed in various positions and the patient asked to call the position. The feet and toes are passively moved and the patient requested to state the change of position, gradually the patient is gotten upon the floor on his hands and knees (with pads on the knees) and it is astonishing to note that many of these patients are unable to maintain this position with their eyes blindfolded. After becoming accustomed to this position they are asked to throw their weight on one hand or one knee, then alternate the position from one extremity to the other until they can do this rapidly without losing their balance. From this they are brought to the erect position on their knees with arms folded and instructed to balance from one knee to the other. They are taught to walk on the knees with head erect and finally to stand holding on the wall and change from one foot to the other, then feet are raised alternately, from the floor and moved forward and backward and from side to side, then they are required to walk; and all of this is done with the eyes blindfolded. These exercises are best conducted in a rythmical manner in time to a metronome or music, finally the patient is instructed to march to music or to dance to music, phonograph is valuable. During all this process the element of fear must be absolutely excluded and if it should crop in at any point we must go back to the beginning and gradually work up again. This process usually takes from one to three months, depending largely upon the intelligence and co-operation of the patient. Special symptoms, such as those of the bladder, must receive appropriate treatment from time to time. Great care should be used to prevent over distention of the bladder, or residual urine. It should be remembered that constant dribbling of urine is not necessarily a sign of vesical incontinence but may be due to constant seeping from an over distended bladder. Cystitis is frequently the cause of death in this disease.

I hope I have succeeded in impressing upon you a broader view of tabes. It is simply a phase of syphilis of the nervous system, not by any means confined to the posterior columns. Treatment should be directed toward the patient as well as the disease.

Kresge Bldg., Detroit.

DISCUSSION.

DR. W. H. RILEY, Battle Creek: Dr. Starkey has brought to us a very important subject for our consideration. Tabes dorsalis is at least one of the most frequent

diseases of the nervous system. As the Doctor has stated, it is quite frequently not properly diagnosed. I think we are all agreed that tabes dorsalis is a syphilitic disease of the nervous system, that is so far as the nervous system is concerned. Of course with this other organs may be involved. Now I think it is very well for us at the outset to have something of a picture in our own minds of just what happens to the nervous system when it is involved with a syphilitic infection.

We may divide syphilis of the nervous system into two groups. First, those cases where the principal lesion affects the non-nervous tissue, where the disease affects principally membranes and the blood vessels of the nervous system. Second, another class where the nerve tissue is principally affected. In this second class, we have especially tabes dorsalis, general paresis. And you might include in this—at least these two. Now in this second group the nerve tissue is the part of the nervous system that is especially affected. But let us also keep in mind the fact that in each of these two classes—that is in the class where the non-nervous tissue is principally affected, the nervous tissue is also affected but in a less degree than the non-nervous tissue.

On the other hand, in tabes dorsalis and general paresis, where the nerve cell and the nerve fibre suffer most, along with this, we also have or may have and do have the blood vessels and the membranes also affected. We may have in addition to this gumma. So that these two classes are distinct and separate one from the other. They both have a thousand things common to each.

Now, syphilis produces then the following changes in the nervous system: It produces a meningitis. It causes changes in the arteries, and endarteritis; and as a result of the endarteritis we may have the blood vessel occluded, the blood supply cut off and we have an acute softening. That, of course, is not a syphilitic lesion but is one of the results.

Then where the spirochete affects principally the neuron as in tabes and general paresis, the nerve tissue itself may be destroyed and you have primary degeneration.

Now, in our therapeutics it is very well when you have a patient to treat with syphilis of the nervous system, no matter whether tabes or general paresis or so-called cerebrospinal syphilis—if we form in our minds a picture of the pathological changes present in our patients, I think it will help us in our therapy. I think we can all readily understand that when we have a blood vessel occluded and an area of acute softening, there is nothing under the heavens we can do to restore that area. Your anti-syphilitic treatment, so far as that is concerned, will do no good. And also, if we have a neuron that is degenerated as the result of the action of the spirochete, if a nerve fibre is degenerated or a nerve cell destroyed, there is no power under heaven that can restore those. Now, on the other hand, there are certain lesions of the nervous system that are amenable to treatment. I am sure some of our oldest members, who have had experience back for years, can recall cases of syphilis where they relieved a syphilitic headache by the use of potassium iodide. You have a gumma, and those inflammatory conditions of the nervous system are amenable to treatment. You can accomplish something there, but you can not do anything to a degenerated nerve fibre or nerve cell or an area of acute softening. So our therapeutics is limited by the pathological changes that are present or may be present in the nervous system. Now, I speak of this in this connection because it not only is important from a pathological standpoint but it has a very important bearing, I think, upon our therapy.

Now, with reference to the symptomatology of tabes, of course it is very large and it is variable and it is so perhaps for several reasons. First of all, it is a progressive disease and our text books divide it into three stages. So that our symptomatology is not the same in any one of the three stages. Then, more than this, the disease enters the nervous system very differently in different cases. Just to illustrate. For instance, we have one group of cases known as the neuralgic form, where the patient simply suffers pains and perhaps has no ataxia at all. Then he goes on with these attacks of pain. Some of these cases have increased knee-jerk instead of loss, and I have in mind several cases where a patient has simply suffered with these pains—with perhaps no other symptom, perhaps some loss of light reflex of the eye—for twelve years, eighteen years—over a long period of time, where the disease is not progressive. Then there are many other varieties of course. So we have a great variety of symptoms which, of course, I have not the time to discuss here.

The old idea that the loss of the knee-jerk is always

present in tabes is erroneous. Some years ago I analyzed something like three hundred cases. In quite a number of these—I don't remember the percentage—but quite a large number, the knee-jerk was neither present nor increased. Now, you do get, in quite a number of cases in the early stages of the disease, an increase in the so-called neuralgic forms of the disease. There are many other interesting things about the symptomatology.

Just one point the doctor spoke about of the diagnosis. I have seen quite a few cases of tabes dorsalis that have been operated upon by prominent surgeons for gall-stones. I think it would be an excellent practice for all surgeons to follow to make a very careful examination of a patient before doing any abdominal operation. And after a careful examination is made, I am quite sure he will be able to find out whether the patient has tabes or not. There are some cases where the gastric crises are almost the only symptom. I saw a case like that not long ago, and I have been around a great deal. The patient had trouble with the stomach and had been treated by a great many different physicians for stomach trouble, and yet he had the gastric form of tabes.

Just a word or two about diagnosis. There is another class of cases that are very often diagnosed as tabes, which are not. There is constantly growing in our own community and in our own country a large and ever increasing number of them—cases of primary anemia, hemolytic anemia, what we formerly called pernicious anemia, with degenerative changes in the spinal cord. This disease develops insidiously. In the early stages it is not always easy to diagnose. In this group of cases you have many of the symptoms that are present in tabes. You will have in some of them at least a loss of the knee-jerk in the early stages. In the later stages, you will have a loss of the knee-jerk in nearly all of them. And you will have ataxia, and you will have other symptoms that are also present in tabes. In my experience, I have found that quite a number of these cases have been diagnosed as tabes. This class of cases I am referring to now are quite as numerous in my experience as are tabes. It is very important to make a correct diagnosis because your man that has tabes may live ten, fifteen, twenty, twenty-five or thirty years. The man with the primary anemia, if he lives three years, he does well. Many do not live that long. So that the diagnosis is important from the standpoint of prognosis.

With reference to the treatment of this disease, the anti-syphilitic remedies do not give us the brilliant results in tabes and general paresis that they do in the earlier stages of syphilis. Now, the spirochete in tabes and general paresis is supposed to be in the nerve fibre and in the nerve cell. In order for our remedy to be of any value it must come in contact with the spirochete and that seems to be a significant thing to accomplish and that is why the intraspinal methods have been introduced because in order for our remedies to get in contact with the nerve tissue, it would have to pass through the lining of the membranes of the brain in order to come in contact with the spirochete. That is, if we put it into the blood—I mean that is why the other way has been suggested. I have never seen any brilliant results from the intraspinal injection. I understand at the Rockefeller Institute at the present time they have abandoned that method of treatment and even with the intravenous method I have not seen anything very brilliant from the use of these newer remedies in the early stages of syphilis and where the syphilis affects other parts of the body.

Now, the doctor has referred to the fear of the patient. I think we can do very much with these patients by looking after their general health. The pains are apt to be more severe just before a storm or in cold weather. Have your patient go to bed and stay in bed for half a day. You can very often avoid a severe attack of pain. I have found that a sinusoidal electrical bath as a means of relief of pain—along with that massage—affords the needed exercise the doctor has referred to and recommended by Fraenkel and the other man in New York. I have seen some very good results from that. These patients are hypotonus. Their muscles are very much relaxed. Sometimes the sinusoidal current will help to tone up the muscles. We have here a grave and difficult disease to treat and yet I think if the disease is taken in the early stages and the patient is carefully instructed in regard to his habits of living, that a great deal can be done for them by proper instruction and keeping up their nutrition.

A very curious thing—you see, this disease develops sometimes ten, fifteen or twenty-five years after the original infection. When the symptoms of tabes appear, the patient

loses flesh and he looks yellow. I often wonder how a man could have the spirochetes in his body for ten, fifteen or twenty-five years and not show any general symptoms of it, and then ten, fifteen or twenty years after not only develop symptoms of tabes but also have general symptoms affecting his whole body. I suppose they become active at that time and affect the whole body.

DR. I. L. POLOZKER, Detroit: I think lately that has been the consensus of opinion of everybody, that the etiological cause of tabes is syphilis. They have tried to get us away from it. The symptomatology of this disease is so variable and the onset is such that it stands out plainly why so many of those cases are not diagnosed. We are surprised, from the literature very often, with the number of operations performed upon patients, where a thorough examination would have revealed a diagnosis early.

I don't differ with either of the gentlemen in regard to treatment. I have seen some beautiful results in the early cases of tabes with the intraspinal injection. I admit that you can not restore a destroyed nerve cell, neuron or any other nerve tissue; but you can arrest the spread and progress of that disease.

I was rather surprised at the doctor's statement that by suggestion he has gotten his patient so far he was not afraid to walk with the eyes shut and everything else, but he was afraid to come down and show it before this society; so he has not entirely gotten the confidence of his patient. I do believe though, that a good deal can be done that way.

DR. COLLINS H. JOHNSTON, Grand Rapids: I was interested in the doctor's statement that sometimes mistakes were made in the diagnosis of pernicious anemia and a case of tabes. A number of cases of that kind have come under my observation. One, a case of pernicious anemia which had passed through the hands of more than one man, after perhaps a rather careless examination—owing to the spinal cord lesion which you find with 60 per cent. of pernicious anemias—had been diagnosed tabes.

Bearing on Dr. Riley's statement of those patients not living more than three years. I recall one whom I treated with salvarsan, one of the first cases of the kind to come to my personal observation, who is in better health now than four years ago. There is one differential point that Mix of Chicago brought out three or four years ago, and that was these cases of pernicious anemia never have the eye symptoms that cases of tabes have. The ones that have come under my observation since reading that article have always had an absence of the eye lesions.

Another class of cases which I have sometimes seen difficult in differentiating between, are cases of multiple neuritis and tabes. Two such cases have come under my observation lately. One in a man who had several Wassermann's made, so absolutely sure was the attending physician from the absence of tendon reflex and the presence of pain, it must be syphilis. More than that his eyes were gone over by two eye men, neither of whom were able to say definitely there were no eye symptoms present. I know that was not syphilis because the man is almost well, the condition having existed about four months.

Another one is a doctor of Grand Rapids, who, several years ago, passed through the hands of several of us. Finally I made a diagnosis of multiple neuritis. He did not believe it. He thought he had locomotor ataxia. I sent him to Chicago, to Billings, who put him to bed in the Presbyterian Hospital for a week. Billings finally sent that man home with a diagnosis of multiple neuritis rather than tabes dorsalis. He went to bed and eventually made a very good recovery in about five months.

Those are the cases sometimes hard to differentiate from tabes dorsalis.

DR. C. D. AARON, Detroit: A year ago a proctologist made the assertion he had found every case of tabes dorsalis suffering from a chronic sigmoiditis. During the past year I had occasion to see one case, and this man added that every case of tabes dorsalis that he treated for chronic sigmoiditis, the patient improved. During the past year I had one case. I treated that patient's sigmoid, and the patient did improve.

Again the thought came to my mind, when Dr. Starkey read his paper, whether it was a psychic influence, putting the sigmoidoscope into this patient, the application to his sigmoid—it is possible the psychic influence improved the condition.

DR. FRANK R. STARKEY, Detroit: In regard to pernicious anemia, being mistaken for tabes. That is scarcely excusable; but then of course, as you know, almost anything from a neurological standpoint that inter-

feres with walking is diagnosed as tabes. Hysteria is not infrequently diagnosed as tabes. I had a case only a short time ago. I thought at first he had a bulbar paralysis. He turned out to be hysteric and he had been diagnosed as tabes. I want to impress the advantage of psychotherapy. I believe it is of the utmost importance.

Regarding this particular patient that was to come here—I did not have his confidence and I never will get it, and for this reason he did not progress as fast as he should.

It is rather characteristic for tabes to develop late.

As to the etiology. I don't want you to think I am trying to start something new in regard to the etiology. I accept that it is syphilitic, so far as we are able to demonstrate at present. And yet I think it is within the bounds of possibility we may change our view. Sometimes I think it is perfectly possible that focal infection from a remote place could attack the posterior columns and produce a syndrome similar to that of tabes or exactly the same as tabes, or even destroy the posterior columns. Don't think for a moment that syphilis has any strangle hold on these columns. Anything that would destroy them would produce the same symptoms. The symptomatology depends upon the physiology of the anatomical structure attacked.

So far as the eye symptoms in pernicious anemia are concerned, you would not get the Argyll-Robertson pupil but you do get miosis. It does not seem possible that any one would make an error of diagnosis.

ANGINA PECTORIS.

M. A. MORTENSEN, M.D.

BATTLE CREEK, MICH.

The word "angina" means a choking sensation accompanied by chest pain. The term was first used by Heberden in 1768, but it is claimed that the first precise description of it was in a letter by Rognon to Lorry, published a few months before Heberden's description. Heberden's outline of the symptom complex of angina was considered "so acute and comprehensive" that while later authors have tried their best to confuse it, they have been able to add very little to it. Everybody is familiar with the fact that John Hunter suffered with this disease.

Some have denied that angina should be classed as a disease, maintaining that it simply refers to a group of symptoms due to a definite pathology of the heart including the coronary vessels and first few centimeters of the aorta. Albutt chooses to class it as a definite disease. E. Fletcher Ingalls who was a sufferer from angina for many years wrote an article on this subject shortly before his death and gave the following definition: "Angina pectoris is a paroxysmal, painful disease of the circulatory organs in which the pain is normally located near the base of the heart, over the large arteries and in the shoulder, back and arms, most frequently confined to the left side, but often in the right side. It is often attended by dyspnea and commonly by mental depression, and a sense of impending death, which must not be confounded with fear." In this same article

he questions whether the group of symptoms attending angina should be dignified as a distinct disease.

Older writers recognized a pseudo-angina, but most modern writers doubt if such a condition is possible. Sir James Mackenzie is very definite on this point, stating that such a condition does not exist. In my limited experience, I have failed to observe cases that I could call pseudo-angina. The cases referred to by older writers as pseudo-angina were frequently found in young persons, and it is at least permissible to suggest that many of these cases belonged to the class that we now recognize as "irritable heart" or "neuro-circulatory myasthenia," being based on entirely different factors as compared to true angina.

In the ordinary discussion of this symptom complex, I sometimes question whether we should refer to it as angina, coronary sclerosis or chest pain. Many of the laity have an abnormal fear of angina because they have associated with the term the idea of impending death. The term "coronary sclerosis" refers to a definite pathology, but it is not always the fundamental thing that causes the symptom complex of angina. Chest pain is more simple, and refers to the chief symptom in the complex, although its actual origin may vary within certain limits.

In order to understand the cause of the group of symptoms classified as angina, we must thoroughly understand the physiology of the circulation, and particularly that which has to do with the blood supply of the heart muscle and the first few centimeters of the aorta. We must remember that the tissues of the body must be supplied with blood in widely varying quantities according to whether the body is active or at rest. A certain standard must be maintained through all the variations between rest and activity. The margin of efficiency must always be rather wide in order not to encroach upon the limit of endurance. It has been estimated by Starling and others that when the body is fairly active, the heart muscle alone must have from three to five times as much blood as when the body is passive. The same principle applies to other organs of the body, but the heart must be considered capable of keeping a proper blood stream going to all parts of the body and always through the same channels. Fundamentally, we must always remember that the heart muscle is responsible for the blood supply and when the muscle fails in its

work, then signs of distress will develop, resulting in incompensation.

The pathology of angina is based on the organic changes that are found in the coronary vessels, myocardium and beginning of the aorta. The first few centimeters of the aorta must be included because this part is supplied by the coronaries through small branches which anastomose with the small vaso-vasorum from the bronchial and pericardial arteries. The cause of angina symptoms is generally believed to be due to various degrees of occlusion of some of the coronary vessels, and this may be developed suddenly by thrombosis or by a slowly developing obstruction or occlusion such as occurs in arteriosclerosis. It is self-evident that partial or complete obstruction to vessels of the coronary system will sooner or later produce grave changes in the myocardium through interference with the nutrition of the muscle.

Le Count of Chicago has recently reported the autopsy findings in sixty cases of sudden death, thirty-four had a fibrous myocarditis with sclerosis of the coronary arteries, and twenty-six more or less acute occlusion. Of the twenty-six with acute obstruction eleven were found to have some traces of syphilis, and the obstruction in the coronary arteries was in the most instances a thrombosis. It may be argued that many of these cases may not have had angina, for unfortunately, the history was not available in many of the cases, but it is clear that a large number may have died in the first attack of angina. The best example are those that died of acute occlusion of the coronary arteries by thrombosis. Herrick and others have reported such cases giving well defined symptoms which would justify a diagnosis of coronary thrombosis, and in most of these death may be expected to occur in a comparatively short time.

The exciting cause of the symptoms in angina may be variable but in the great majority of cases exertion is usually connected with the first attack as well as succeeding ones. In some cases, the first attack will develop all of the classical symptoms with fully developed chest pain radiating over the arms and shoulders, while others merely complain of a feeling of oppression in the chest, this becoming more and more frequent and severe until it is a definite pain. Anger or other intense emotional disturbances in some cases may be the first disturbing factor, but in a large percentage, the first attack is noted after some physical exertion.

Various authorities on cardio-vascular disease have advanced different theories concerning the cause of the chest pain. Mackenzie leans strongly to the supposition that the chest pain is due to muscle exhaustion which distributes the pain over the area reflexly connected with the heart and beginning of the aorta. He claims that when exertion is indulged in sufficient to produce pain, it is the cry of the myocardium for more nutrition and states that even in normal individuals exertion can be indulged in to the point where there is a pain resembling that of angina. Another reason for thinking it is due to the lack of blood supply to the muscles is the results noted in intermittent claudication. In this condition, the arteries of the legs are very much sclerosed and the caliber is greatly reduced. When such individuals walk rapidly, there is noted pain in the calves of the legs, described as a cramping sensation. Almost immediate relief is obtained by resting. Such individuals will usually stop for a moment, or perhaps lean against a building or even sit on the curbstone to rest. I think all agree that in intermittent claudication, the pain is caused by a lack of blood supply to the muscle. The production of the symptoms in angina pectoris and intermittent claudication are both ascribed to exertion and are relieved by rest, so that it is reasonable to consider the conditions parallel as affecting the muscle. Others advance the theory that the pain originates in the blood vessels and is the result of stretching the aortic walls. The same condition may apply to the coronaries. There is no doubt that pathological changes in the beginning of the aorta are frequent, and that pain is evidence of this, as shown in cases of syphilitic aortitis; and we have cases of angina pectoris where the seat of the trouble is more in the aorta than in the myocardium. Arterial spasm is also advanced as a cause, based in part on the fact that the spasm of the blood vessel interferes with the supply of blood to myocardium and because of this interference, pain is produced. This spasm may be produced by toxins circulating in the blood, having a more or less direct effect on the blood vessels or it may possibly be produced through the nervous system.

I think there is no doubt in the minds of the profession that any and every case of angina pectoris should be diligently searched for any possible foci of infection that may be a distributing point for toxins, having a profound effect on the body in general. In my experience this has proved of extreme importance

especially in cases where the angina symptoms have been of comparatively short duration. I cannot emphasize too much the importance of careful study of the tonsils, teeth, sinuses and gall-bladder as possible foci of infection as I have had striking results in the removal of infection from all of these points in patients suffering with angina symptoms. Allow me to refer to one case with typical symptoms of angina brought on by exertion so that he was unable to walk more than a block without severe pain. X-ray of the teeth revealed several apical abscesses and removal of these teeth was followed by almost complete relief so that in the course of two weeks, the patient was able to walk three or four miles a day without any discomfort whatever. I have had similar experiences from the removal of diseased tonsils.

The prognosis of angina pectoris is very uncertain. It is impossible for any one to predict with any reasonable degree of certainty the length of life that individuals suffering with angina may expect. In my experience, I have had a number of cases that suffered such intense pain with recurring attacks throughout the day or night that frequent use of nitroglycerine had to be resorted to, in order to obtain relief. If the question had been asked, one would have been inclined to say that the individual would be likely to die almost any time, and the prospects of living more than a few months were dubious. One such case was under my care more than four years ago, and improved slowly, so that within several months, he was able to walk about the city without much trouble. A few months ago, I had a letter from him stating that he was greatly improved and rarely had any attacks of angina. On the other hand, I have had cases that apparently suffered much less and died within a short period. Much, of course, depends upon the habits of living and the attitude of the patient toward the disease. If they are always apprehensive as to the outcome, they stand much less chance than those who take it philosophically. The condition of the blood vessels is something of a guide in the prognosis. If the arteries are extensively sclerosed, we must conclude that the prognosis is unfavorable; the danger being acute thrombosis of the coronary arteries.

In the management of cases of angina pectoris, it is necessary to assure the patient that the attacks are not fatal, even if the pain is severe, and they must be made to accept the pain as a warning so that whenever the first symptoms manifest themselves, they will stop

and rest until the pain is relieved. In presenting this feature to the patient, he is likely to be less apprehensive and we thus eliminate the fear and anxiety as factors in causing these attacks. Next, we must see that all possible foci of infection are eliminated, as above referred to, and also emphasize the importance of proper elimination by way of the intestines and the kidneys. These patients should be placed on a laxative diet that is not too bulky, and if necessary, mild artificial remedies used to secure proper elimination. In conjunction with this, the exogenous toxins indulged in by many of these cases in the nature of alcohol, tobacco, tea, coffee, and the excessive use of proteins should be proscribed if possible. Everything should be done to give the patient the best chance as far as general health is concerned. When this has been done, other treatment may be considered. Many authorities favor a complete rest cure, but in my experience, I have not found this satisfactory. While it is true that these patients during the period of the rest cure experience no pain, as soon as they endeavor to resume activity, even moderately, they are troubled more than ever, which is very discouraging.

For a period of four years, I have observed a number of these cases, and I have advocated the policy of urging them to take all the exercise possible, short of producing discomfort or pain. I instruct them to rest on the slightest evidence of discomfort or chest pain. Furthermore, I always advise them that in walking, they should start out slowly and gradually increase their gait. This prevents the lowering of the muscle tone and if persisted in, gradually increases the efficiency of the heart muscle. If this can be done, the chest pain is less apt to develop with moderate exertion.

In conjunction with the exercise, moderate massage, mild hydrotherapy including Nauheim baths have proved beneficial. In these treatments, however, anything in the nature of a sudden insult to the circulation should be avoided, as this is likely to bring on a paroxysm of pain. In cases with increased blood pressure, high frequency will prove beneficial, and in some cases diathermy has served to relieve the pain. In giving the Nauheim baths, it is important that the temperature be gradually reduced to about 92 degrees during a series of baths, and that immediately after the bath, the patient rest on a couch for at least half an hour.

Medication should be instituted, first for the immediate relief of pain and next, for the improvement of the efficiency of the myocardium. For the first, nitroglycerine is probably the most valuable, and this can be given in doses of 1/200 to 1/100 of a grain. The patient should be instructed to place the tablet on the tongue, and not to attempt to swallow it with water. In this way, almost immediate relief is obtained. If necessary, the dose of nitroglycerine may be repeated without any danger whatever. Occasionally, we find a patient in whom amyl nitrite gives better results than nitroglycerine. To improve the efficiency of the myocardium, and in this way decrease the muscle exhaustion, digitalis is of the greatest value. This is particularly true in cases where there is dyspnea or evidence of myocardial insufficiency. It is my habit in all cases of angina with the least evidence of cardiac embarrassment to give a rather vigorous course of digitalis therapy. This particularly applies to cases where the pulse rate is above normal, and where there is the least evidence of shortness of breath or edema, and the results have been decidedly gratifying. When the above efforts fail to give relief, the use of diuretin may be tried as first advanced by Von Noorden. I usually give 5 to 7½ grains in a capsule three times a day, occasionally securing very satisfactory results.

In cases of emergency, where nitroglycerine does not afford relief and there is danger of death, morphin should be used hypodermically for the relief of pain, and in the average case 1/6 morphin with 1/150 atropine will give relief.

SUMMARY.

1. Angina pectoris is a disease of the coronary vessels, beginning of the aorta and myocardium.
2. The disease is evidenced by subjective symptoms of chest pain beginning in the region of the precordium and radiating to the left shoulder, arm, neck and back, and sometimes to the right arm.
3. The symptoms are probably the result of muscle exhaustion due to an insufficient supply of blood to the myocardium or stretching of the aortic ring.
4. These symptoms may be greatly aggravated by focal infections such as teeth, tonsils, sinuses, gallbladder or toxins from faulty elimination by way of the bowels or kidneys.
5. Exciting causes of the symptoms are exertion, anxiety and emotion.

6. Treatment: General conditions affecting the health of the body should be carefully adjusted, foci of infection and sources of toxemia removed as completely as possible. Digitalis should be used to improve the myocardial tone.

7. In cases of emergency, immediate relief of pain should be obtained by nitroglycerine, or morphin with atropine.

DISCUSSION.

DR. W. M. DONALD, Detroit: I am very glad indeed to respond and am glad of the opportunity of talking on Dr. Mortensen's very excellent paper on the subject of angina pectoris.

I don't know as there is a great deal I can say on this matter. It seems to me in an academic way, Dr. Mortensen has covered the ground completely. There are a few points on which there is a slight divergence of opinion. Before going to these, I would like to mention a point, and that is this: In all cases of sudden death, we should absolutely refuse to sign a death certificate until we know the exact cause of death and thereby would we enhance our own knowledge and the knowledge of others in the profession as to angina pectoris, one of the various causes of sudden death. In our laziness, in our effort at obtaining the good will of our patients, we are too lax; and, consequently, fail to add to the world's knowledge.

The information Dr. Mortensen has given us is interesting and especially valuable. Now, I must confess the thought comes to me, there may be cases of neuro-muscular disease—there may be cases of sudden disturbance, mental disturbance of the individual. And whatever they are, I don't care; they seem to form a symptom complex. And Dr. Mortensen to the contrary notwithstanding, I feel almost, in justice to myself, like adhering to the old nomenclature. I apply the term "angina pectoris" to a certain group of cases. Where the patient is low, and there are so many factors to disturb their mental faculties, I call these pseudo-angina pectoris. We can do more good than in ordinary cases of angina pectoris.

So far as the cause of the disease is concerned, it always occurred to me as being a case of cardiac anemia. Whether that be due to stretching of the muscle fibers, due to dilatation of the heart—I have seen any number of cases due to this particular cause—or whether due to an aortic disease or whether due to a coronary disease or whether it be due to a spasm of the coronaries—it could not be characterized as a disease but simply as a functional disturbance. Whether, I say, any of these factors be present or whether they all be present, the pathology of the disease is anemia of the cardiac musculature. Because of the coronary sclerosis, of course we have a gradual increase of anemia. In cardiac spasm again we have myocardium anemia. In diseases of the aortic group, we of course again have a sclerosis of the apertures of the coronary vessels and consequently subsequent anemia of the myocardium. So that, in my judgment, the cases are all practically cases of anemia of the myocardium.

There is just one other point I want to bring up in this connection. These cases are exceedingly dubious and uncertain. Those we expect to get better, die; and those we expect to die—fortunately for them and unfortunately for our reputation—get better. But the cases are undoubtedly of exceedingly doubtful prognostic individuality.

I make a practice of telling my patients frankly, lying cheerfully, that they are going to get better, and minimize as much as I dare, trying to square my statements with my own conscience, minimizing the gravity of the disease. Unfortunately for my own peace of mind, deep down in my heart I am watching the death notices in the papers to see that so-and-so died suddenly the day before, knowing the true character of the lesion and the true character of the disease. Fortunately for those cases, I rarely have an opportunity to exploit my pet scheme; and somebody else is called in to sign the death certificate and the patient hurried away without an examination of the heart, which should be done in such cases.

There is one other point and that is in regard to the point about focal infections. I don't think in these cases the foci should be removed. Infected tonsils, of course, are a source of danger. This comes deep from my heart. If there ever

was anything that has been exploited to the detriment of the profession—or shall I say to the detriment of the public—so damaging (except to depart, that holocaust upon the ovary perpetrated by our profession about twenty-five years ago), it has been the useless sacrifice of teeth where a little point of infection has been found up in some root; and the physician, for lack of anything better, has had the whole orificial cavity denuded of teeth. Might as well die almost of angina pectoris, might as well die suddenly and peacefully as die by inches as so many of these people do. In such case, I have said remove a tooth or two; but for little persistent neurotic pains, little persistent myalgic pains, to simply send the patient to an X-ray man and then ruthlessly eliminate from his mouth all the teeth in order to cover his own ignorance, then I absolutely protest.

DR. E. W. HAASS, Detroit: I think that we can be quite justified in regarding angina pectoris as a symptom rather than a disease. Of course, it is so closely associated with certain factors that we may, in some cases, of course, regard a coronary sclerosis and the symptoms of angina pectoris as one and the same thing. However, I think our pain of arthritis is of an entirely different prognostic value and subjected to entirely different treatment. I don't mean to say we can't have some arthritic pain that depends upon a condition in the mouth.

Vaso motor angina pectoris. These are the ones that can be benefited by removal of focal infections. When a patient has once developed a sclerosis, it is foolish to imagine the condition can be eradicated by the removal of some focus.

Two patients I had developed, six years ago—one was a tea taster who had typical attacks of angina pectoris. The blood pressure would go up with a typical attack. The other one was an excessive tobacco chewer. Typical angina pectoris without any demonstrable at least sclerotic process. Those are very different cases. But where the blood carries some toxemia, the result possibly of tooth abscess or a tonsillar affair, those patients, of course, can be benefited by the removal of the focus; but the removal of the focus will not have any effect upon a well established neurotic process.

DR. H. A. FREUND, Detroit: Mr. Chairman, the paper of Dr. Mortensen brings up the time honored discussion of what angina pectoris really is. I think at the present time if we are satisfied to accept angina pectoris as a syndrome rather than as a disease, we have gone as far as we can with the subject. I am in hearty accord with what Dr. Mortensen says in regard to pseudo angina.

One point Dr. Mortensen did not mention in particular in connection with that is the fact, I think, the older text books mention to a large extent, the rarity of angina pectoris in women. That is not my experience. Angina pectoris occurs in women and occurs not infrequently with just the same intense symptoms we see in men. True, that is not as common, perhaps, because of the difference in the mode of life of women. They are relatively not as prone to the strain. Syphilis and aneurism do not occur as frequently. Among them we do not see the marked symptoms of myocardial disease the way we do in the male. However, angina pectoris does occur in females, and the use of the term pseudo angina is a very dangerous one.

I think the main query on that subject will simply be a matter of prognosis. We simply convey to our own minds, we hypnotize ourselves to the belief that it is not a serious disease and we put it in the discard in the matter of being dangerous to the individual. I think we should regard all precordial pains radiating around the left arm and neck as being under a group which may be due to certain cardiac conditions.

Dr. Mortensen has summed it up in saying, due to myocardial anemia. I think rather it is ischemia, that is the failure of blood supply to some part of the myocardium.

Whether due to endarteritis, whether due to myocarditis from infection, sclerosis, really makes little difference in our conception of what the disease is doing in a patient. It is really ischemia, and whether it might exist in such a case as Dr. Haas has mentioned is also important. Still, we must not lose sight of the fact that there are many cases of generalized sclerosis in which we have angina symptoms. Where, in post mortem, the heart shows a marked thickening of the coronary vessel, such individual never possesses any of the symptoms of the real angina pectoris. That brings us to the fact there must be something else that occurs besides the sclerosis or ischemia. I think in a great many cases, the mental state plays a large part.

I think when Dr. Mortensen encourages his patients to walk, beginning slowly and increasing their walk, he does one great thing outside of exercise. He really brings to their mind the possibility that they can walk. He makes them believe that,

although suffering from a disease from which they can not walk, by carefully increasing the exercise, they will overcome the disease. The psychic factor is enormous and should be considered.

In the therapeutics of this disease, the importance lies not in the general measures, but in the elimination or rather in the estimation of what are the things that are most likely to cause angina in the individual. I think there is where the main thing lies in the treatment of our case.

If we must treat our case symptomatically, first of all nitroglycerine should be used. The most useful way I have ever found is taking one per cent. of spirits of glonoin and putting it on the back of the tongue. In that way, the patient gets about one-one-hundredth of a grain. The tablets are varying, whereas the fresh solution is always to be had; can be freshly made up and can be used by the patient and by the attendant of the case. If nitro-glycerine or any of the nitrite series are of no avail, I believe the patient should be allowed to use morphia. It does more to relieve these patients than any other single thing.

In myocardial disease, we frequently see signs of cardiac failure increased in the right border of the heart, slight dyspnea and some cyanosis on exertion and may be other symptoms referable to the beginning of cardiac failure. In such a case, the use of digitalis is indicated. The use of digitalis in a neurotic heart, where there is no failure in decompensation, might do harm. I have seen such patients suffer more severe attacks by the use of digitalis where there are signs of contra-indication.

I may add one thing more in the therapy of the case of angina associated with syphilitic disease, that is, in the anti-syphilitic treatment. I have seen great harm and danger come from too radical and too severe treatment of cases of angina by the use of large doses Salvarsan. I know that is done at times, especially with aortic lesions. I have seen in two instances, giving large doses of Salvarsan, and in one case resulting, in twenty-four hours, in death. I believe our time honored use of mercury and iodides is the essential thing until such a time as we feel safe in giving more stringent therapy.

THE CHAIRMAN: Personally, I don't like the division into angina and pseudo-angina. I think we ought to use some specific terms. When I talk to medical students, I say, "Either they have angina or they have not." I have discarded this term of pseudo-angina.

There was not the stress laid on syphilis that is very often laid. I don't believe that every case is due to syphilis. That is a contention that some men make, and men whose opinions I value, too. I sometimes see doctors with angina pectoris, and I don't want to think that all my doctor friends that have angina pectoris have syphilis. It may be that is true. I really don't think that obtains in every case. I personally do not believe it is so.

I am glad Dr. Mortensen brought out the fact of focal infection and the possibility of other infections. It can't be simply that angina is poor nutrition of the heart muscle, because in any number of cases of heart disease of long standing, they must have had the condition, and yet don't have the angina. I have always had the idea there must be some pathological change around the root of the aorta, as well as some pain in the heart muscle itself. That is the opinion which I at the present time hold.

The main medication, it seems to me, is iodides, persisted in for long periods. Digitalis I have found useful. Of course, there are signs of decompensation. Another drug which I believe is helpful, one which I use in a great many of the cases, is theobromine and sodium salicylate. I think it is beneficial in producing a better blood supply to the heart itself. When it comes to the use of the nitrites for my use I generally use perles of amyl nitrite. I generally have the patients get a box of the perles and have them on hand. The method Dr. Freund uses is valuable, but when people have to use the nitrites over a long period of time, why, the use of the spirits is not so easy as the use of sodium nitrite. I find that I can generally control the blood pressure pretty well in these cases. I found the use of the tablets, half grain doses, four times a day, will generally give me what results I need, by means of such agents.

One drug which you should not use—and Dr. Haas has given us a clue as to why—in these cases is caffeine. Any of the caffeine group seem to be productive of harm in these cases. They increase the angina.

As far as local measures are concerned, I find that the use of the electric pad is about the most comforting thing. There is weight with the hot water bottle. With light things, such as an electric pad, which brings a degree of heat to the precordium, it will give great relief.

In that connection, I want to say that really the best thing for the patient is not to stay in a cold climate. I have one patient who goes to Florida. I used to get fifty or one hundred a month during the winter. He goes south and does not need a doctor down there. Once in a while, he calls in to see how his blood pressure is getting along. I know a physician who went down to Florida and now contemplates changing his place of practice to Florida, because he found he got so much relief from going there during the winter. The cold climate seems to have a bad effect on him. By getting in a warm climate, they have dilatation and lowering of the blood pressure. However that may be clinically, we do find that these patients practically all do much better in warm climates.

DR. M. A. MORTENSEN, Battle Creek: I thank the gentlemen very much for the discussion they have brought out. It is a subject that has interested me very much for a number of years, and it is gratifying to me to know that other people who are interested in it are on the fence on some things just as I am. It is on occasions like this we some times can get help in crystallizing our ideas.

I heartily agree with what Dr. Donald said in regard to the question of autopsies. I think we, as a profession, in all classes of cases, are probably very lax in trying to get autopsies, and in that way lose a definite conclusion as to the condition or the findings in the patient that we have been treating. I think this applies very definitely to the cases such as Dr. Donald referred to, and also cases of renal diseases in connection with arterial hypertension. It is a condition that interests us very much in conjunction with cardiac pathology. There is a great deal in this subject that is still not unfolded to us. By a careful study of the autopsy findings in many of these cases, we might get more light than we have.

The question of pseudo angina is one that is troubling me. My experience has been in cases of where the question is whether that patient had pseudo angina or not—after a very careful study of the patient from all angles, I have not been able to come to a conclusion that the patient had the definite pathology that we ordinarily associate with angina and consequently I do not feel justified in diagnosing pseudo-angina.

With reference to the removal of foci of infection, I deplore very much the experience of many people of the promiscuous removal of teeth and tonsils. This, I think, is a very unfortunate thing that is practiced by some. We should not depend alone on the fact that there is a little infection, but if there is extensive infection in either teeth or tonsils and the condition of the patient will permit, then I think we should advise the removal of the foci of infection; but not necessarily promise the patient that removal of the foci of infection is going to relieve any symptom of which they specifically complain. I feel this way: in such cases where there is definite infection the patient will be better off without it than if we let them go on with it.

Dr. Haass' remarks on the vaso motor conditions is another very interesting phase of cardiac pathology from the symptomatic standpoint at least. It is here again that the foci of infection may play a part, that the toxins from some foci may be the cause of vaso motor disturbance. We all know this, that it is not unusual to have a patient with an increased blood pressure, where you remove the foci of infection, the blood pressure will subside and various other toxins eliminated will have the same effect.

Dr. Freund's remarks with reference to angina in women are interesting. I have observed the same thing in the literature, but I find that the angina complex or syndrome occurs very frequently in women. Yesterday morning I saw a woman 54 years old with a blood pressure of something like 230 that had had, during the night, typical angina symptoms of a very severe degree. Those are not at all uncommon at present. It is likely that a change in the habits of life that occurred in the last 15 or 20 years has brought some causes to act in women that are acting in the male sex as to strenuous life.

With reference to medication and the use of nitro-glycerine: I have had some experience that Dr. Freund refers to in cases where nitro-glycerine is necessary. If it has to be taken frequently because of frequent attacks of pain, then the spirits of glonoin probably will act better than the tablets. But the tablets are more convenient, as a rule. If the patient carries them for a month, they will degenerate and they only use those occasionally. The same thing is true, of course, of the spirits of glonoin. They must go and have it refilled or made fresh at frequent intervals.

Digitalis therapy should be used cautiously, as indicated by Dr. Freund. And we must not give a patient a large amount of digitalis and tell them to go and take it, and not expect to see that patient in the course of a few days again. When I give a patient with angina pectoris digitalis, I never pre-

scribe more than half an ounce at a time. And then I expect to see that patient every two or three days, and see what the effect of the digitalis is, and in that way little or no harm will be done; but if we are careless and forget that the patient is taking digitalis and give them—some prescribe one or two ounces of digitalis—they may keep it up until they reach the danger point. In cases where there is suspicion of syphilis, the Salvarsan must be used cautiously.

I have had a similar experience this winter. A patient had a marked aortic regurgitation with history of, as well as serological evidence of, syphilis. I ordered three-tenths of a gram of Salvarsan. Unfortunately, the man I spoke to about this failed to get the patient's name, and he was given six-tenths of a gram with very unpleasant results. That is, the patient had marked signs of cardiac distress, which lasted about 24 hours, but, fortunately, nothing serious resulted. Syphilis, I think, should always be considered in these cases, as Dr. Wilson suggests, but we should not condemn a person as having syphilis because they have angina. We must have good reasons besides angina to conclude they have syphilis.

My experience with the iodides has been rather unsatisfactory, except in the cases where I found definite evidence of syphilis. A few years ago I used to give it not only to patients with angina, but also patients with arteriosclerosis, but I have fallen away from it entirely because the results did not justify the methods used.

Climate, I think, is important, especially in individuals that have the means to change their abode of living every year for the winter, because warm weather does have a beneficial effect on these cases of angina pectoris.

THE CHAIRMAN: Personally, about this Salvarsan, I believe it is all right to use in a syphilitic heart and aortic diseases. I never start in with a dose of more than 15 centigrams. Fifteen is the first dose. As I say, I have not had any unfortunate results so far. In some cases, I have found some little acceleration.

THE MODERN CLINICAL CONCEPTION OF PULMONARY TUBERCULOSIS.*

HERBERT M. RICH, M.D.

DETROIT, MICH.

It is not my intention to inflict upon you a long dissertation on more or less familiar subjects or to repeat the old admonitions. These are old stories to the members of this section. On the other hand it is a pleasure to realize that progress is being made in our study of the world's most dangerous plague, and it may not be uninteresting to consider our changing attitude toward this disease.

Within the last ten years the study of early pulmonary tuberculosis as found in infancy and childhood, and the development of X-ray study of the contents of the thorax during life, have gradually changed our conception of the clinical pathology of this disease.

ROENTGENOLOGIC DIAGNOSIS.

We frequently hear the remark that the roentgenologist finds tuberculosis in nearly every chest we ask him to examine. I often hear it seriously stated as a criticism of the X-ray diagnostician. As a matter of fact the remark reveals that the real relations are not understood. It is, as a matter of fact, true that the Roentgenologist finds tuberculosis in

*Read before the Medical Section M. S. M. S., Detroit, May 22, 1919.

nearly every chest. And if we accept the statements of Von Pirquet and many others, that something over 70 per cent. of our urban population past the age of 14 has had a tuberculous infection, and if we remember that the healed tuberculous lesion is a nodule containing calcium salts, then the roentgenologist *should* find such lesions in over 70 per cent. of the chests he examines. His findings correspond to our teaching. The absurdity in the situation, if any exists, is that we should expect to find tuberculous disease whenever he finds tuberculous lesions, for tuberculous infection and tuberculous disease are two different things. The question for the clinician is, shall we tell every patient that he has tuberculosis when the X-ray report states that there are tuberculous lesions in the lung; or to put the question differently, how extensive a tuberculous lesion in the chest as shown by the X-ray may we pass over in our clinical judgement of a case?

Again the roentgenologist uses terms in his description of the findings of his chest plates which do not correspond with the text-book terms of our physical diagnosis. For example, the X-ray report may read: "Marked increase of the hilus density with accentuation of the bronchial tree, especially on the right; the same but less marked on the left. Paravertebral parenchymatous infiltration in the upper left." Such a report is of course, a brief but accurate description of what is actually seen on the plate. If our terms for the result of our physical examination do not correspond, why so much the worse for us, for as a matter of fact, such a description corresponds exactly to our present day teaching of what should be found in the lungs in early adult infection. There seems little connection between such a report and this: "dullness and bronchial breathing in upper right, few rales subclavicular on left. Harsh breathing at base." Such physical findings alone are unintelligible and unintelligent. They may exist with a perfectly normal lung. The physical findings corresponding to the X-ray plate described above would vary according to the activity of the lesion. But the fundamental findings would be constant as will be described later.

To explain this it is necessary to recapitulate briefly the manner of infection and invasion of the tubercle bacillus. The points of entrance are chiefly three: through the nose into the lymphatics of the posterior pharyngeal wall or along the tracheal mucous membrane;

through the mouth into the lymphatics connected with the tonsil, and through food into the lymphatics of the small intestine. The human tubercle bacillus shows a marked preference for the respiratory tract, and is carried to the lung in 85 per cent. of infected cases from whatever source the infection may come. Once in the lung, the invading organism is taken up by the nearest lymphatic glands, according to the defensive system of the body. If the invasion spreads it will go along the chain of glands which will lead to the hilus. Here it involves gland after gland until our "hilus density is markedly increased"—the exact language of our X-ray report.

This is the stage in which we get our clinical "bronchial gland tuberculosis" of infancy. From the hilus it spreads again along the lymphatics, most rapidly usually toward the upper lobes, then the middle, and usually the lower lobes last. It should be borne in mind that the process may be arrested at any stage of this invasion, which may undoubtedly progress slowly in this manner over several years. A well resisted infection may be confined to the lymphatics and never get any further. This slowness of progress by which a clinical process is *years* developing instead of days or weeks, is one of the confusing elements of the disease. We meet the cases at all stages in the development of the lesions, and we should be able to recognize it before the so-called "far advanced" stage is reached. Pathologically such a process is a *tuberculous peri-bronchial lymphangitis*. These lymph channels and glands follow the branching of the bronchial tree. So here is the roentgenologist's "accentuation of the bronchial tree." It is also true, of course, that at any stage of the process just described, the organism may invade the contiguous parenchyma. When resistance to the infection is slight, such invasion takes place early and may progress rapidly. It occurs most often in young adults and clinically may be our "galloping consumption." This so-called "parenchymatous type" is much more fatal than the bronchial tree type, and naturally would be if our premise is correct that such early parenchymatous invasion is due to lack of normal resistance to the infecting organism.

A third possibility is the occurrence of remissions and recrudescences of the progress of the invasion. This is the foundation of true phthisis. Here during the remissions we have the gradual formation of scar tissue with the deposit

of calcium salts characteristic of chronic pulmonary tuberculous infection. Man is the only animal subject to this form of tuberculous disease, due possibly to the fact that there is a considerable degree of racial immunity to this infection widespread in the human race. With each recurrence of the advance, new tissue is invaded and the well-known constitutional reaction to such invasion occurs. The physical findings when such a case comes before a physician are, then, evidences of previous invasions in the presence of scar tissue with evidence at some point of an advancing process, the so-called "active lesion." The scar tissue will normally be earliest found at the hilus and along the bronchial tree.

These facts explain why in examining recruits, we were instructed to reject not only those with evidence of active lesions but also all those who had signs of a healed parenchymatous lesion of any demonstrable extent. The Surgeon-General recognized that in examining supposedly healthy men, we would find many tuberculous individuals in the stage of remission, and that these men would be very likely to develop activity around such lesions under the stress of active military duty. He recognized also that the stage of remission is to be expected in the ordinary development of the course of the disease, and that if the recruit had parenchymatous tuberculous lesions, he should be rejected regardless of whether or not he exhibited rales on the particular day he was examined.

PHYSICAL SIGNS.

The physical findings of the fundamental lesions, then, should be sought for always before a diagnosis of pulmonary tuberculosis is made.

These findings are the physical signs of increased mediastinal density, always most accurately detected from the back, and signs of deep peribronchial invasion. In infancy this occurs as enlarged bronchial lymph glands, and is demonstrated by the so-called *D'Espine's sign* and also by direct percussion on the upper five dorsal vertebrae. The demonstration by percussion from the front is also more easily made in infancy. In adults the signs are (1) dull percussion note in the interscapular region, especially from the 4th to 8th dorsal vertebrae; (2) increased whispered voice with broncho-vesicular breathing in the same area. After having satisfied one's self that there has been tuberculous disease of the lungs in a given individual, then one should seek evidence of actual parenchymatous invasion.

The detection of the early parenchymatous lesion is most frequent in the upper lobes. If quiescent, there may be only an extension of the broncho-vesicular breathing. Perhaps the most certain early sign is the prolonged and harsh expiration at the tip of the axilla. This point is easily overlooked but very important. The active lesion, of course, may give rales. The parenchymatous lesion near the hilus may be very difficult to demonstrate except by X-ray, because of its location deep in the thorax.

Another contribution of the skiagraph to our knowledge of the living pathology of the lung, is the demonstration of the frequency of small areas of spontaneous pneumo-thorax and of small interlobar encapsulated empyemas. These often give puzzling physical signs and lead to erroneous diagnosis unless our findings are checked up by the ray. Thus far we have considered the relations of X-ray findings and physical signs. Since we find some evidence of tuberculous invasion in so many thoraces, the practical question arises, when shall we make a diagnosis of tuberculous disease? Certainly not in every chest where the X-ray report shows the signs of tuberculous lesions. This is when experience must lead us. It is difficult to formulate general rules, certainly in the absence of the well known symptoms of the disease, there is no occasion to alarm a patient. It would seem wise not even to use the term "arrested" unless there has been a parenchymatous invasion.

FOCAL INFECTIONS.

Having considered the correlation of X-ray findings and physical signs, it remains to consider the bearing of another recent clinical development: the *focal infection*. Recognized by keen clinicians since the time of Benjamin Rush, it remained for Billings and Rosenow with modern bacteriological technic to put it on a scientific basis. So far as the lungs are concerned the chief centers of focal infection are the nasal accessory sinuses—frontal, ethmoid, sphenoid and antrum; the tonsils, the teeth, and the appendix. We have long been familiar with the results of direct infection from the tonsil—arthritis, chorea, and the "rheumatic pleurisy" of the English. But the action of these foci in relation to tuberculosis is quite different and decidedly complicated. One thing seems quite evident, and that is, that the loss of resistance due to the focal infection, may be so marked as to allow a previously arrested tuberculous lesion to again become active. This

seems reasonable and observation has shown that in a considerable proportion of such cases, one or more of these focal lesions may be found. We associate consumption naturally with the status phthisicus, but we also know that many persons of robust appearance and good chest capacity develop pulmonary tuberculosis. It is in these latter cases especially that the focal lesions of importance are found. The number of instances in which pulmonary hemorrhage occurs in persons having dental apical abscesses of long standing under old crowned teeth is truly remarkable.

The painful pleurisies aside from pneumonia invariably have either such abscesses or septic tonsils. The sinus empyemas in addition to breaking down the general resistance of the body, are often accompanied by bronchial asthma, and these cases are often tuberculous if not consumptive. The vicious influence of the infected tonsil in the general organism is of course, well recognized, while pyorrhea, with the saliva alive with bacteria, is a constant menace to the health of the individual.

The treatment then of early pulmonary tuberculosis is incomplete unless it includes these possible foci of infection. The pulmonary hemorrhage will surely recur if the dental abscess is allowed to remain. The painful pleurisy will recur and extend if teeth or tonsils are septic. And bronchial asthma in these cases is never cured if the sinuses need draining. While to build up the general resistance of a patient in whose body is a chronically irritated appendix or any other active focal lesion, is, to say the least, a difficult undertaking. Another aspect of focal infection seems important. The tubercle bacillus alone rarely kills anyone except an infant. It is the mixed infection which produces the septic symptoms and the rapid destruction of tissue. Is it not logical to believe that an active focal infection may contribute steadily to such mixed infection until an overwhelming point is reached?

SURGICAL TUBERCULOSIS.

One other point remains to be discussed briefly, and that is our attitude toward surgical tuberculosis. I believe that present-day surgery of the lung and of tuberculous lesions of various parts of the body, is one of the least efficient chapters in surgery. In saying this I am not at all criticizing the surgeon for every day I realize more and more our great dependence on surgery. My remarks are to be taken as coming

from a well wisher whose only desire in the matter is to help the surgeon to better final results.

In the first place the use of large doses of tuberculin to produce a focal reaction for the purpose of diagnosis of tuberculous disease is a dangerous and unjustifiable practice. Tuberculin like any other powerful remedy, like strychnine, morphine, and curare is a dangerous drug. It may do great harm to a patient pulling up stream against a mass infection. I believe its common, widespread use in surgical diagnosis should be discontinued.

A second question is that of operating on tuberculous lesions. This should be necessary only in neglected cases with great destruction of tissue. When performed, the operation should be regarded simply as one step in the treatment.

There is in general altogether too much operating on tuberculous bones. If the tuberculous process be arrested a corrective operation later may be most useful, but thousands of hunchbacks in the United States going about their daily work, show how well nature takes care of these lesions. The treatment designed to arrest the general tuberculous process with the sun-cure and careful bracing or splinting, gives excellent results.

Operation for cervical adenitis should be directed at the tonsils, teeth, adenoids or middle ear. The glands will take good care of themselves if relieved from a constant stream of incoming infection. The most help they need locally is to withdraw any fluid contents with a needle. The complete dissection of the cervical glands should never be necessary. If tuberculosis of the kidney be diagnosed early, it should never be necessary to operate for it, or on any other tuberculous lesion of the genito-urinary tract. In general, conservative surgery will regard tuberculous lesions as evidence of a general process. Measures will be prescribed to protect the parts from injury and *active treatment* for the general process will be begun. That is the secret of the greatest surgical success in this disease. I believe that every case operated for a tuberculous lesion *should be placed in a sanatorium* and given the benefit to be derived from the great stimulation to their processes of repair by the open air treatment.

Is it logical, am I right?

1337-49 David Whitney Bldg.

DISCUSSION.

DR. BURT R. SHURLEY, Detroit: This is one of the great problems we have with us at all times. The demonstration of its prevalence and methods necessary to eliminate tuberculosis,

and the very interesting problems connected with it on a tremendous scale such as we had to deal with in the army, has perhaps brought out some very definite, interesting scientific facts. From the fact we have this enormous material to deal with, it has led us to certain definite conclusions which I think are quite worth while and which will be of great benefit to the suppression of the disease and to the sufferers for many years to come.

In the first place, Dr. Rich has brought out the wonderfully interesting relationship between focal infection and tuberculosis. There are undoubtedly yet, after all these many years of education medically to the laity, an enormous number of cases of tuberculosis of every kind and variety that go on to later and later stages without proper prompt recognition by the medical profession or the people respecting the chance of any tuberculous lesion being present. It is certainly amazing that, after all that has been done, there can be so many advanced cases; and yet it is part of our absolute duty to bring this work more definitely within the diagnostic realm.

This relationship of focal infection has been the part undoubtedly of the most interest to us who have been trained in the old educational way of dealing with the respiratory tract rather than purely internal medicine work, and that is to perhaps appreciate somewhat the relationship of the infections of the upper air tract, the nose and the throat and the trachea and the bronchial glands, and that the deep-seated pulmonary tuberculous infection might be caused by these secondary infections in the tonsils, adenoids, etc. Again, this old, old story. It seems almost too bad to have to even speak of it, after the enormous amount of literature which has been brought out.

Yet in our army experience, we found there was very little tuberculosis in any of the recruits. Major Webb seemed to think that those who smoked cigarettes and inhaled them were practically free from tuberculosis, and the only cases that we had were those that didn't smoke. Of course, that absolutely turned things upside down from all ideas of the Anti-Cigarette League and all the things our good professors have taught us in medical college for a good many years back. Certainly there were some almost really absurd relationships, as I found it myself on inquiring. Among the soldiers, of course almost everybody smoked. It was just here and there a chap didn't smoke cigarettes and the reason was he couldn't get hold of them. Of course that is the rankest kind of heresy to talk about from all the standpoints of hygiene. Yet there is something to be given further investigation along that line; whether stimulation of the mucous membrane eliminates and drains more freely some of the lymphatic secretion on through the bronchial glands and through the lymphatic chains and made a greater circulation of the lymphatic secretion or not, remains to be worked up. But about sixty per cent. of all focal infections are tonsillar and an enormous number of people we know have tuberculosis up to the time they are 33 years old. You can change those statistics back and forth, but a great number have been infected.

Now, then, the thing we are interested in is the activity of the disease at the time. By definitely checking up this activity with our tuberculin reaction, with our complement fixation, with our X-ray—which is only an aid to diagnosis in my opinion and should not be taken as a complete and absolute and definite diagnostic procedure, as has been brought out by some of the roentgenologists. I think there is too much prominence given to the fact that we are taking just a single plate of an individual at a certain definite time, and that we can not eliminate observation, human intelligence, common sense, and a definite scientific understanding of your individual, which are really the fundamentals of successful work in tuberculosis; and unless that is looked upon in a broad way, such as Dr. Rich has brought out in his paper of considering all the different angles and all the different standpoints, it seems to me that we are liable to be run away with by some fad or fancy or somebody's idea, just as we are so frequently in the medical profession. There are those of us that can look back twenty years, can look back and laugh many a time at the things we ran away with, the things we thought were great; and after ten years, we throw that out in the alley as perfectly no good to humanity and a waste of time and thought, whereas certain good things stand their place and are well known. But it seems to me there is a place for everything in this diagnostic circle; and the laboratories should have theirs, the X-ray should have theirs, and the clinical diagnostician should also be given his and hold his long and well recognized usefulness as a physical diagnostician.

DR. J. L. CHESTER, Detroit: I think Dr. Rich is to be congratulated on bringing before this section the best modern views on the subject. We have all been attracted to the ques-

tion of focal infection. Bringing it up as he has done now, makes us all indebted to him.

When I began the study of medicine more than a quarter of a century ago, the method was to make diagnosis only when the patient was in a precarious position. There was no doubt about the diagnosis. Then, a few years afterwards, when there was a great deal of work done following the discovery—later when they began—they were a little farther and the pendulum swung the other way and they began to call all classes of patients that they saw for a time tuberculosis. If the patient showed loss of weight, showed dyspepsia, had a tuberculosis history, they were at once O. K.'d as tuberculosis. With children that was very common. That was one thing Dr. Rich did not bring out in his paper, the value of history in making the diagnosis. I know that he has paid a great deal of attention to the value of history, because I have known him to go into that very thoroughly at different times.

The difference between the X-ray man and the clinician has been largely the X-ray man has interpreted his findings, what he finds in his shadow shows definite infiltration or infection. What the clinician wants is whether there is an active process or not. Seventy per cent. of all people, nearly all plates will show a shadow, while only 20 per cent. show an active process. The doctor says, very justly perhaps, I believe he said that tuberculin was of no value. We have some places where it is of much value if used when indicated. Of course, you would not give tuberculin to every case. Before you commence giving tuberculin, every case should be carefully studied, and there should be an experiment made with each case before the initial dose is given. It seems to me that it may be summed up in this: the X-ray test, the history and a careful physical examination should all be brought in together in making the diagnosis.

The Doctor spoke of the early cases being put in a sanitarium. My trouble has been, since I have been in Detroit, over and over again I have called up Dr. Rich, "I have a patient I would like to put in the sanitarium." "The sanitariums are full." We need more sanitariums.

DR. W. H. CLIFT, Flint: I think this paper is remarkable for a number of things. In the first place, it so absolutely hit the nail on the head in regard to the relation of the X-ray finding and the clinical finding, and the fact that it thoroughly covered the whole situation it seems to me on the question of activity.

It strikes me, and I think most of you will agree with me, that as far as the treatment is concerned tuberculosis has been pretty well worked out. But the question of diagnosis is a thing that concerns everyone. After all, the whole thing simmers down to a question of activity.

As to the relations of the X-ray examination to the clinical examination, I think Dr. Rich pointed out the main fact when he said that the physical findings, corresponded with the X-ray findings. Those of us who have had an opportunity to check up large number of cases with the clinician have found that this is practically so. That where the clinician would find definite physical findings in the one, we could find in the X-ray plate shadows which corresponded to those findings. If you find localized dullness, you will find a localized shadow with the X-ray plate. After you are all through with the examination, either with the X-ray or with the physical findings, then you must place an interpretation on those findings as regards the pathology.

I think for a long while we have been disregarding in our examinations too much the underlying pathology, and have laid too much stress upon particular signs. In my own particular field—one sign that used to have a good deal of significance a few years ago was a failure of one of the diaphragmatic arches to have the same amount of excursion as the other. In other words, a retardation in the movement of the diaphragm. Now we know that has no particular relation to tuberculosis. Any acute chest infection will produce that sign. That is one of the great drawbacks to the accurate diagnosis of tuberculosis in particular, that not only the X-ray man but the clinician is inclined to pin too much faith upon one sign. The question of determining activity in an X-ray plate is a questionable affair. There are a great many roentgenologists who think they can determine the activity by the X-ray. I am dubious. I think you can determine the relative age of a lesion. For instance, if we have two lesions, one on either side, you can tell the relative age of those. One may be older than the other.

The experience we have all had recently with the acute conditions in the chest has brought about a source of error in our findings. These acute conditions all leave behind them more

or less signs in the condition of the shadows of the bronchial tree, all of which may be confused.

However, I think the most significant thing is that tuberculosis is likely to start at the apex, the lymph stream being more sluggish in the apical region, and the bacilli go against the stream, making the apices the most vulnerable point. We are likely to have that before we have involvement of the lobes. So that if we find a lesion which is very well localized, particularly in the apices, then I think the diagnosis is one of tuberculosis. On the other hand, where we find a generalized process throughout one lung or both lungs, with a history of acute pulmonary infection, influenza or bronchial pneumonia, then I think, to sum the whole matter up, there is room for a great deal of work, both from the standpoint of physical diagnosis and from the standpoint of the roentgenologist to co-ordinate the actual pathology underlying the tuberculosis with the physical findings.

I saw on the program that Dr. Vaughan would be here. It was a great disappointment to me when I learned he had not yet returned. His work on the other side was of such a nature, he could throw a good deal of light upon this.

SOME PRESENT-DAY TREATMENT OF EAR DISEASES IN THE LIGHT OF MEDICAL HISTORY.

EMIL AMBERG, M.D., F.A.C.S.

DETROIT, MICH.

In the treatment of ear diseases in ancient India two things were recommended particularly—rest and the avoidance of fatigue.

Hippocrates, among other things, gives the following picture: The patient throws himself about on account of pain, has high fever and is delirious. In the beginning there is severe pain in the ear, radiating into the region of the temples, frontal bones and into the eyes. The head is full and heavy, and motion sometimes causes vomiting. On the fifth, seventh and eighth day the ear discharges and cerebral symptoms disappear. If the ear does not discharge, the retention of pus usually causes death on the seventh, ninth or eleventh day. Acute ear suppurations are either genuine or complications of peripneumonia, endemic fever or influenza, which was epidemic in the region of Corinth at the time of Hippocrates.

Treatment in ear suppuration was dietetic and local. Before perforation of the drum-membrane a light diet is recommended besides honey-water, oatmeal and diluted wine. Sponges soaked in hot water were placed on the head of the patient. The diseased ear was held over steam, or oil of almonds was instilled into the same. Sometimes blood-letting was resorted to, or counter-irritants were tried by applying irritating ointments to the shaved portion of the head. If warm poultices were not tolerated, cold were tried. So long as the ear discharged freely it was left alone; later it was syringed with warm water, sweet wine, human milk or rancid oil.

Celsus (about 35 B.C. to 45 A.D.) used in cases of inflammation of the ear, irritating ointments after the head had been shaved; he also used bleeding in strong, robust people, and cathartics in weak people. If there was severe pain he used poultices of poppy-seed, instillations, especially, however, opium. He knew that inflammation of the ear can lead to insanity and death. For discharging ears and ulcers he used vegetable and metal astringents. He removed foreign bodies with a probe. He used instillations of vinegar with a veratrum preparation for killing insects. He also advised otoplasty, and gave accurate indication for the operation of atresia of the ear canal.

Archigenes of Rome, at the time of Trajan, about 100 A.D., used a method to remove foreign bodies by gluing them to a brush. He also used tubes introduced into the ear to facilitate hearing in people suffering from hardness of hearing. He reports the harmful results of using cold water in the ear.

Scribonius Largus removed polyps by cauterization.

Galen tells that a physician used pepper in an inflamed ear in a patient and that she was thereby almost driven to suicide. He observed that hardness of hearing and deafness can be caused by a lesion of the hearing organ itself, or of the acoustic nerve, or through a lesion of the root of the acoustic nerve in the brain. He recommends that remedies in the ear should be used warm. Galen recommends slitting and cauterization in caries of the bone. He used ear suppositories consisting of veratrum nigrum and honey, also finely shredded sponges which are shaped like a bullet and moistened with honey.

Alexander of Tralles (525-605) reports that hardness of hearing and deafness were treated by some physicians by acoustic instruments and hearing tubes, apparently inaugurating ear exercises. "Some physicians have performed the arteriotomy and then put the end of a trumpet into the ear canal and blew. Others have made noises with large bells and others have used instruments especially intended for that purpose."

Paulus of Aegina, in the middle of the Seventh Century, reports as the ultimate procedure in removing foreign bodies, if nothing else helps, a semilunar incision behind the auricle and detachment of the upper posterior part of the membranous ear.

Abul Kasim (912-1013) used cauterization as a remedy in otalgia. He applied a hot iron

in ten different spots around the ear. The Arab medicine was especially rich in instruments. There are forcepses, canulae for suction in the canal, little knives to break up swollen seeds, and ear syringes.

Guy de Chauliac, the most famous surgical writer of the fourteenth century, mentions the nasal speculum and the ear speculum. He distinguished between idiopathic ear diseases and those following diseases of other organs. He claims that the hardness of hearing which becomes better at times can be cured, but that which exists for a greater period than two years cannot be cured. He has his knowledge of adenoid vegetation from Avizenna.

Nicola Nicole (1357-1413) was one of the most able physicians. He mentions a certain Simeon who recommends, in deaf people, the use of a silver or iron tube which fits exactly into the outer ear canal, and to repeatedly produce strong suction with this tube.

Giovanni Arcolano (who died in 1484) recommends to palpate the surrounding of the suffering ear. He discriminates between suppuration of the ear and abscess of the brain, and observed changes in taste in diseases of the ear.

Giovanni Da Vigo of Genoa (born in 1460) used the ear speculum (*ad Solem speculo instrumento aure ampliata*).

John of Gadasden, Joannes Anglicus, recommends the removal of pus from the ear by suction. He also claims that this remedy is useful in tinnitus.

Bartholemeus Eustachio (1510-1574) described the form, structure and course of the Eustachian tube. He also recognized the great value of his discovery for physiology and therapy. It was not until the Eighteenth Century that this important otological discovery was made useful through the application of the catheter.

Fabricius Hildanus (1560-1634), a very famous physician, who practiced especially in Switzerland, invented an ear speculum. He also described the following interesting cases:

A girl suffered from a severe reflex neurosis for six years caused by the presence of a glass pearl in the ear. He cured her by removing the same. He also removed a polyp from the ear of a patient, a girl eight years old who objected to excision of the same, by tying it off and by treating the rest by a caustic. He described a case in which a physician pushed a cherry stone, lodged in the right meatus, still further into the same with a sharp hook and caused a suppuration. The stone was spon-

taneously expelled. The boy, twelve years old, suffered from an attack of vertigo, staggered and inclined his head to the right side. He also described an abscess which developed in a woman forty years old, behind the left ear, and which burst spontaneously. The woman died. Fabricius advised not to wait for a spontaneous rupture but to incise early.

Sylvius de le Boee (1641-1672) knew that deafness could be caused if pressure was exercised upon the acoustic nerve by a tumor or by an exudate, also by injuries to the brain and commotion of the brain.

Guichard Joseph Duverney (1648-1730), remarks that drummembrane is not absolutely necessary for hearing purposes.

The catheterization of the Eustachian tube, as Meyer says, is nothing else than a perfection of the Valsalva experiment. This experiment was known in antiquity, and Archigenes used it for the removal of foreign bodies.

In 1724 the post-master Guyot, of Versailles, used a catheter, which he introduced behind the soft palate and by the aid of which he cured his deafness.

Archibald Cleland, in 1741, presented to the Royal Society of London a catheter made of pliable silver, which he introduced through the nose.

Joannes Riolanus, Jr., (1580-1657) reports that somebody improved his hearing accidentally by pushing an ear spoon deep into the ear, tearing the drummembrane and breaking the ossicles. He also considered whether it would not be a good thing to open the mastoid in tinnitus.

In 1797-1799 Himly, of Goettingen, taught the operation on the cadaver and on living dogs.

In 1800-1801 Astley Cooper successfully perforated the drummembrane on three people who were hard of hearing.

Schwartz's merits in connection with the incision of the drummembrane are known.

The history of mastoid operation is a chapter by itself. However, mention should be made of the French surgeon, Jean Louis Petit (1674-1760) who carried out the first modern mastoid operation and described it in a modern way. Others followed. After the physician to the king of Denmark, von Berger, succumbed to a mastoid operation the operation fell into disrepute until Schwartz re-established it.

COMPARISON.

Of course we can compare only in a way the treatment of ear diseases of the present day with those of former times, because most of our knowledge of physiology and pathological anatomy has been acquired in modern times, and furthermore, because the success made possible by aseptic surgery is also a product of modern times especially in diseases of the labyrinth and in intracranial complications. Nevertheless, we learn that the ancients and those following them rendered very good service, and we must marvel, in many instances, at the correctness of their observations. For instance, even in India we learn that rest was recommended in ear trouble, and yet it is observed nowadays that, time and again, people suffering from middle ear inflammation are ordered to clinics when they should remain at home. One of our modern writers, Heine, says as follows: "The demand for rest does not allow ambulatory treatment of an acute middle ear inflammation. These patients should not be ordered, perhaps daily, to the physician's office. Hereby the chances of a quick course and one without complication are lessened. The comparison of the result in private practice and in the polyclinic proves this. I cannot recollect a case from my private practice in which I was obliged to open the mastoid provided the drummembrane was opened at the proper and early time, and provided the patient rested in bed. Of course, I admit that an opening of the mastoid once in a while may become necessary." Heine considers every move severe ear inflammation a grave disease, therefore the patient should stay in bed, even if he feels well and if he has no pain and fever.

Thus we learn that, in this respect, we have not improved upon the teachings of the ancient inhabitants of India. Bearing in mind the little that I have mentioned about the observations made by Hippocrates, are we really entitled to boast so much of our present-day knowledge, considering the long intervening space of time?

It not infrequently occurs that the neglect shown by postponing the incision of the drummembrane may lead to the dire results mentioned by Hippocrates. We should as a rule not syringe ears with a very profuse thin sero-sanguinous discharge; a similar rule was observed by Hippocrates. Not so very long ago the autopsies performed in children who died of broncho-pneumonia revealed the fact that in more cases than was supposed a middle ear suppuration was found. Hippocrates knew this

complication. In influenza we are familiar with the ear complication; so was Hippocrates. Blood-letting and counter-irritants were not unknown to him. We are quite proud of our plastic operations. They were known to Galen as was the operation of atresia. Unskilful attempts to remove foreign bodies are not unfamiliar to us; Fabricus Hildanus dwelt on that fact. Many people wonder that people can hear without the presence of a drummembrane; Duverney was familiar with that fact. The deafness caused by pressure on the acoustic nerve or injuries to the brain has recently been brought forward; Sylvius de le Boee knew it. In removing foreign bodies we have sometimes to resort to an incision behind the auricle and to temporary detachment along the same; Paulus of Aegina reports the same procedure. Loeuwenberg removed foreign bodies by gluing them to a brush; a similar method was used by Archigenes.

Some polyps at our time are removed by cautery; Scribonius Largus did the same. On the other hand, we observe that the introduction of all kinds of useless and sometimes injurious material into the ear has its counterpart in ancient history.

At the time of Asclepiades (2nd century B. C.) e. g. the ear prescriptions frequently contained irritating substances like juice of onions, pepper against pain in the ear, which remedies may have caused much damage. (Meyer.)

These few instances are selected at random from the preceding remarks which, in themselves, cover only part of the ground. While I do not wish in any way to belittle the progress which has been made in our time, a very great one indeed, we must admit the fact that not infrequently observations which have been made many hundred years ago, and rules which have been observed in times remote, have not become familiar to all physicians even now. Those who confine themselves particularly to otology and allied subjects should make it a point to aid in the dissemination and generalization of knowledge concerning their line of work. This, of course, applies to all other branches of medicine as well. It seems evident to me that lack of centralization and co-operation, lack of system and lack of method are standing in the way of still greater progress. In some places this fact has been acknowledged and recognized by the establishment of special hospitals, which are productive of good results

by virtue of centralization. Let us hope that such a plan will become more general. I might add that I am in favor of special hospitals only in connection with general hospitals respectively special departments in general hospitals. It is not only necessary that one or the other individual physician be familiar with the facts, but it is essential from a humane, from a sociological and an economic standpoint that all people should enjoy the benefit of medical knowledge accumulated in the course of the ages.

BIBLIOGRAPHY.

1. Heine: Ear Surgery.
2. Meyer: History of Otology.
3. Politzer: History of Otology.
4. Stern: In Encyclopedia of Otology.

THE PATHOLOGY OF MASTOIDITIS WITH ESPECIAL REFERENCE TO ITS CLINICAL SIGNIFICANCE.

R. BISHOP CANFIELD, M.D.

ANN ARBOR, MICH.

Acute mastoiditis is in almost all cases secondary to an acute suppurative otitis media or to an acute exacerbation of a chronic suppurative otitis media. It occurs as a common complication of the otitis media of head colds, tonsillitis, influenza and the acute exanthemata and results either from the virulence of the infection which attacks middle ear and mastoid simultaneously, or from insufficient drainage of pus from the middle ear. In the latter case it occurs when the spontaneous perforation is situated in the upper quadrants of the tympanic membrane or when paracentesis has been delayed. The tissue changes taking place within the tympanum are so closely associated with those in the mastoid that mention should be made of them in discussing the pathology of mastoiditis.

An intense hyperemia of the Eustachian tube and tympanum is soon followed by thickening and infiltration of the mucous membrane of the tympanum, which is especially marked around the tympanic orifice of the tube and in the membranous folds of the attic. These latter frequently increase in size to such an extent that they fill the attic and bulge downward into the lower half of the middle ear. The tympanic membrane takes part early in the pathological process. Pyogenic bacteria make their entrance, tissue necrosis follows and the tympanum becomes filled with pus. In the more virulent in-

fections complicating scarlet fever, caries of the ossicles and tympanic walls occurs. Perforation of the tympanic membrane generally takes place early although frequently not until grave change has taken place in the tympanum and irremediable danger has been done. Perforation occurs generally in the inferior half, but if the disease is located chiefly in the attic, it may occur in Shrapnell's membrane, in which case involvement of the mastoid is the rule.

Generally speaking the higher in the tympanic membrane the perforation occurs the more important is the pathological change in the tympanum.

Pus is probably present in the antrum and neighboring mastoid cells in every case of suppurative otitis media. This does not necessarily mean, however, infection of the bone. As long as the pus makes its escape freely into the middle ear, the disease in the mastoid may be limited to hyperemia, swelling and small celled infiltration of the antral lining membrane. When, however, the infection is of sufficient virulence, or when drainage is interfered with either by the formation of granulation tissue in the aditus, or by the presence of pus in the mastoid cells, escape from which is for anatomical reasons impossible, retention takes place, the bone is attacked and mastoiditis is set up. The cell first is the mastoid antrum, the muco-periosteal lining of which becomes densely infiltrated and suffers a loss of substance. The antrum then becomes filled with infected granulation tissue and pus.

At this stage there is found an abscess cavity occupying the deeper portion of the mastoid, which serves as the primary focus from which extension of the disease process takes place as the result of:

1. Direct extension.
2. Gravitation of pus into remote parts of the mastoid and formation of secondary foci of disease.
3. Vascular channels.

Direct extension of the disease from the antrum is the result of pressure. Pus and granulation tissue form within the antrum in amount sufficient to cause considerable pressure upon the muco-periosteum through which course the nutrient vessels of the mastoid cells. The result is destruction of these vessels, necrosis of the walls of the antrum and enlargement of the primary focus. This may continue with greater or less rapidity until the entire mastoid

process is converted into one large abscess cavity filled with pus, granulation tissue and dead bone.

Extension by gravitation occurs in pneumatic and deploetic mastoids with great facility. Communication between the cells of different parts of the mastoid is sometimes so free that the possibility of gravitation can easily be demonstrated by the probe. At the time of operation large cells at the tip or backward over the sinus are found to be extensively diseased, while the antrum is but slightly affected. The foci of disease may be separated from the primary focus by considerable distances and in some instances the bone between them is but slightly affected.

In certain temporal bones, notably in which the structure is more compact, the establishment of secondary foci of disease at a distance from the primary focus can be explained by neither of the above methods of dissemination. In such cases the areas of disease may be separated from each other by bone that is apparently perfectly healthy. Even microscopical examination may discover no trace of infection.

Extension of disease may with justice be considered to take place along the blood and lymph channels of the bone.

The changes occurring in the temporal bone, as the result of an acute infection, may, as has been said, progress to a point at which recognition of the condition is unmistakable, even to the inexperienced. On the other hand, operation may be made at a time when the blood supply of certain pneumatic areas has been cut off, but before visible change has taken place in the affected part. Bone is then uncovered which is apparently healthy, but is doomed to sequestration if permitted to remain. This fact alone has made it clear to the Otologist that he cannot expect to make accurate differentiation between healthy and diseased bone, i. e. between bone which may be allowed to remain and bone which must be removed. When added to this observation there is knowledge of the fact that in remote parts of the temporal bone may be foci of infection established through the agency of the vascular channels, he has sufficient explanation for the failure to secure satisfactory results after an apparently satisfactory operation has been performed.

Until the last few years, even in the practices of the most skillful and experienced operators, about one case of acute mastoiditis in twelve operated upon either failed to come to perfect healing or after having apparently gran-

ulated favorably from the bottom broken down after a few months and exhibited a sinus leading into the depths at the bottom of which dead bone or even a sequestrum could be demonstrated. In about 30 per cent. of the cases the trouble was found to be at the mastoid tip, removal of which was followed by permanent healing. In the remaining cases the cellular structures at the posterior root of the zygoma was found to be the seat of disease although all bone that showed evidence of infection had been removed at the time of operation.

This knowledge leads to the formulation of the rule of removing all cellular structures wherever found; this included the entire mastoid cortex, tip, posterior root of zygoma and all pneumatic cells of the mastoid process. It was feared at first that the deformity following such a complete operation would be unsightly. Experience has proven, however, that the depression behind the ear becomes much less than that after older operative measures, indeed it is quite insignificant.

In addition and more important, the operator has the satisfaction of seeing both the ear and mastoid immediately cease to discharge and, with the exception of but a fraction of one per cent., all his acute cases make complete and early recoveries.

Chronic mastoiditis is the result of an acute mastoiditis that has failed of complete resolution, or is due to the extension backward of a chronic suppurative otitis media without evidence of acute disease of the mastoid. In the first case failure to return to the normal is due to the character and extent of the pathological change in the mastoid, to continued reinfection of the ear, or to the fact that parts of the mastoid that can not be drained through the ear have become involved. In the second case the mastoid becomes involved only after the disease in the ear has become chronic, as a result of which the mastoiditis has no part in the acute inflammatory condition, but is essentially chronic from the start.

The pathological changes taking place in the tympanum and mastoid are identical in character although they differ considerably in the degree to which the various changes extend. Four different and distinct processes may be described.

1. Hypertrophy and hyperplasia of the muco-périosteal lining with conversion into chronic granulation tissue.
2. Eburnation or sclerosis.

3. Caries and necrosis.

4. Cholesteatome formation.

Hypertrophy and hyperplasia of the mucous membrane lining of the tympanum affects chiefly the membranous folds of the attic although the lining of the entire tympanum is often involved. From the attic extension backward into the antrum is merely a question of time. This hyperplastic tissue becomes infiltrated with small cells, loses its epithelium and becomes converted into chronic granulation tissue. These granulations vary greatly in size from the more minute to those large enough to appear in the external ear as polyps. This change is communicated to the lining membrane of the mastoid cells with the result that they become more or less completely filled with chronic inflammatory fibrous tissue. This tissue may persist without further change, or may be transformed into bone with complete eburnation of the mastoid process. This is the pathological condition found in many cases, the chronicity of which is determined by continued reinfection from the tympanic orifice of the Eustachian tube.

If the hyperplasia of the antral mucous membrane is sufficient to prevent the escape of pus into the middle ear, necrosis of the mucous membrane follows, exuberant granulation tissue forms, the blood supply of the walls of the antrum is cut off and caries results. By an extension of the process the mastoid becomes converted into abscess cavity filled with pus, granulation tissue and dead bone. Caries is not limited to the walls of the mastoid cells. The walls of the mastoid process itself are frequently destroyed. Extension takes place upward into the middle cerebral fossa, backward into the lateral sinus and posterior cerebral fossa, inward through the inner tympanic or antral wall into the labyrinth, or downward into the jugular bulb and the neck. It occasionally happens as caries progresses, that the blood supply of large portions of the temporal bone is cut off with the resulting sequestrum formation. In this way the anterior mastoid wall, the external attic wall, the mastoid tip, and even the entire labyrinth become loosened and converted into foreign bodies. These two pathological processes are almost always associated, in which case it generally happens that caries is most marked in the tympanum and in the neighborhood of the antrum, while sclerosis is most marked in the more superficial areas. The result is that the deeper parts are converted into an abscess cavity, the purulent contents of which

is in intimate contact with the brain, while the superficial parts form a wall of dense ivory like bone which renders perforation and escape of pus externally impossible.

The formation of cholesteatome during the course of a chronic mastoiditis is of frequent occurrence. It results from the extension backward of a similar process in the tympanum after the chronicity of the suppurative otitis media has become firmly established, the cellular elements of the cutaneous lining of the external auditory canal take on an active proliferation with a resulting ingrowth of epidermis through the patent perforation in the tympanic membrane. The same proliferation takes place, to a limited extent, in the mucous membrane of the tympanum. The epidermis thus formed invests firmly the walls of the tympanum and grow into the most minute pneumatic cells and Harverscan canals. If the suppurative process is of low grade and if no caries is present, epidermatization may stop the discharge and line the tympanum with a dense steel gray membrane. If, however, the discharge is profuse, or if caries exists, proliferation and desquamation are very rapid and the tympanum becomes filled with a peculiarly foul smelling discharge known as cholesteatome. The mastoid becomes involved by the extension backward of this epidermatizing process. The first change noted is in the antrum, the walls of which become lined with the newly formed membrane. If no obstruction to the free escape of the discharge takes place, the condition may be present for years without further extension of the disease or occurrence of symptoms. If partial obstruction occurs the discharge collects under pressure sufficient to destroy the walls of the antrum and neighboring cells. In this way the mastoid is occasionally converted into one cell lined by pearl gray membrane and filled with cholesteatome. Under certain conditions this cholesteatome, instead of appearing as cheesy lumps, is cast off uniformly in layers so as to form lamellar tumors (cholesteatomata) having an appearance not unlike that of an onion and composed of layer upon layer of desquamating epidermis.

When associated with caries, the pressure of the cholesteatome is frequently sufficient to destroy the walls of the mastoid and to allow infection to reach the internal ear and middle and posterior cerebral fossas. Cholesteatome is occasionally found upward in the zygoma or backward in the occipital, separated from the primary focus by apparently healthy bone.

Of the above pathological changes, caries and sclerosis are almost always associated, while cholesteatome occurs with great frequency. The amount of caries or sclerosis depends upon the virulence of the infection, upon the duration of the disease, and the character of the mastoid. Thus the amount of caries is greater in cases of marked virulence, or of protracted course occurring in large thin walled pneumatic celled mastoid, while marked sclerosis is to be met with in most cases of protracted course occurring in small celled or deplectic mastoids. The relative proportions of these changes varies within the widest limits. At the time of operation one case shows the mastoid to have been converted into thin walled abscess cavity filled with pus and dead bone or cholesteatome. Another shows the entire mastoid sclerosed and as hard as ivory with the antrum abnormally small. In the majority of cases, there is a moderate amount of superficial sclerosis, while the deeper parts contain pus and cholesteatome. In one series of cases published by the writer:

1. Marked Sclerosis was present in 52%
2. Cholesteatome was present in 79%
3. Meningitis was present in 71.2%
4. Adenoids were or had been present in.. 75%
5. Disease of childhood had been present in 75%
6. Facial paralysis present before operation 11%
7. Jaw had been entered in 4%
8. Labyrinth had been entered in 15%
9. Dura had been uncovered in 25%
10. Perforation through some wall 37%

In estimating the clinical significance of chronic mastoiditis one must take into consideration the surgical relationship of the mastoid to the structures; i. e., the brain and the vascular channels of the dura, and must realize that 75 per cent. of all brain abscesses and the majority of all cases of suppurative meningitis are of otitic origin. Inasmuch as the extent of the pathological change can not be determined before operation and as the brain, dura and sinuses can be involved without the causation of symptoms, the presence of a chronically discharging ear can not be regarded with composure by even the most optimistic of observers. The presence of this focus of suppuration is responsible for many a case of lowered vitality and may therefore be indirectly the cause of many diseases with which it apparently has no connection.

The chief reason, I believe, why practitioners have regarded chronic suppurative otitis media with indifference is that the majority of cases with which they have come in contact have resisted treatment either operative or otherwise.

This is due to ignorance of the location and character of the pathological changes within the mastoid and also those measures by which a cure can be effected. Physicians have become weary of irrigating and treating the middle ear through the canal without result and have been dismayed at seeing recurrence of the disease after thorough curettage of the mastoid. When one considers, however, that the attic of the middle ear is invariably involved and that this region is not reached by the ordinary mastoid operation and also that caries and cholesteatome formation invade the most minute Haversian system of the temporal bone, he sees two good reasons for his failures. Study of the spontaneous cures sometimes affected by nature in even the most extensive cases has made clear the operative procedure by which success may be attained. We not infrequently see patients who, in previous years, have suffered from a chronic suppurative otitis, and whose ears have ceased to discharge. In a fair percent of these cases the reason for the cessation of discharge is plain. Caries has destroyed the external wall of the attic and the inner end of the posterior wall of the auditory canal. This has thrown the external auditory canal, the tympanum and the mastoid into one irregular cavity, the walls of which have become lined with epidermis by extension inwards of the skin of the external canal. This is nature's radical operation and is the condition which the operator brings about by the radical mastoid operation; that is, a single cavity with smooth walls secured by throwing the tympanum, antrum, mastoid and canal together by removing the external attic wall, the posterior and superior canal walls and the entire mastoid process. By this method the entire diseased bone is removed and a satisfactory approach to the brain, sinuses and labyrinth afforded should the necessity for attacking them arise. Although this method renders possible the exposure of all diseased areas, it can not be expected that it or any other procedure will permit the operator to eradicate the microscopical bits of carious bones and cholesteatome that have invaded the minute pneumatic spaces and Haversian canals that are met with in the deepest parts of the temporal bone. It is the cholesteatome that is the most difficult to eradicate. No matter how great pains have been taken nor how extensive the operation, the surgeon must recognize the possibility of infection in the depths of the wound during healing by the minute bits of cholesteatome forced out of the Haversian canals. To overcome this re-infection

tion, it has been necessary to maintain the operative field open to observation and free of granulation tissue until epidermization of the mastoid cavity has become complete. By means of a plastic operation upon the soft tissues of the posterior wall of the external auditory canal, the mastoid cavity can be kept under perfect observation until healthy skin can grow in from the edges of the canal, replace the cholesteatoma and cover the cavity with steel gray epidermis. When this has taken place, the patient may be considered well. The final result then is a cavity hidden from view, composed of external auditory canal, tympanum and mastoid, covered with firm epidermis.

If, as a result of the operation, we can look forward, safe guarding the patient's life and causing cessation of the discharge, and that without destroying that degree of hearing which the disease has left him, certainly these cases of chronic suppurative otitis are worthy of operative interference.

DISCUSSION OF CANFIELD AND AMBERG'S PAPERS.

DR. HAROLD WILSON, Detroit: I did not hear the first paper, but I am quite of the opinion expressed by Dr. Amberg, that we are too satisfied with our own attainments, and too apt to consider them our own accomplishments. Something like one thousand years ago the prognosis in middle ear infections was about as it is today, and 1500 years ago the treatment of chronic defects was not essentially different. Although we have progressed in our knowledge of oto-stimulation, yet we definitely associate the pathology with the treatment. To my mind the pathology is very much like many other things, unless it has what is called a pragmatic value, it is a matter of ordinary importance. I believe our prognosis has been a matter of small advances—almost infinitesimal accretions from generation to generation and from individual to individual. It gives us some comfort, perhaps, in one sense, that we have reached the age, professionally speaking, when we can look back upon our careers and and think we have added anything worth while to the practice of medicine; but I think if we were more familiar with the history of medicine we would think less of our own accomplishments.

DR. ALBERT E. BERNSTEIN, Detroit: I was especially delighted with Doctor Amberg's paper. Andre Perez was one of the first to do a real mastoid operation. He had seen several operations done in Italy, and when Louis, the son of Catharine de Medici, who was married to Marie Sturat, came down with an acute mastoid, Perez wanted to operate, but was prevented by the Catholic Church and by political machinations. I believe afterwards Perez did several operations of this kind.

With reference to one feature of Dr. Canfield's paper—he spoke of these isolated areas of cholesteomata. I am certain a great deal of our failure or success in the radical operation may be traced to that. I have in mind an instance right now—a man on whom I did a radical mastoid in August. He got along fairly well, but shortly afterwards he complained of a pain over the ear, and the X-ray showed a small area of cholesteomata which we evacuated, and he got well. He still complained, and we operated the third time and found another area. He got along all right, and then later went up to Ann Arbor and was operated there, and a few weeks ago he turned up at my office again, still suffering. These things show how careful one should be about condemning another operation, that may have been done very carefully, and still something left behind.

DR. R. S. GOUX, Detroit: There is one factor in the care of these cases that I think should be mentioned at this time,

and that is the use of vaccines. I started to use vaccines on myself. I had had a tonsillitis, and incidentally an infection of the kidney with a pronounced case of nephritis, and was in bed a good many weeks. I made a perfect recovery, but I do not think my recovery was perfect until I began to use these vaccines. I had used them before, at first very moderately. Two or three times I stopped because I would get results I could not understand. I would use vaccines in some of the ear cases—some would get well and some would not, and suddenly some would give very bad reactions. It led me to the conclusion that the vaccine treatment of a good many of these cases is a very important thing. I do not believe we know very much about the use of vaccines, but I think in twenty-five years from now we will know a lot about them, and in twenty-five years from now I think we will find that in a great many cases instead of giving people so much treatment internally we will give them vaccines. We will know more about what we are doing. It seems to me that the most encouraging thing in the treatment of these cases of chronic discharge from the middle ear has been the use of vaccines. I have had cases where I had treated them in the regular way and practically had no results, and finally decided I would do an operation; but before doing that I tried a little vaccine, and have been very much surprised with the way some of these cases were arrested in response to the vaccine treatment. It is a form of treatment that you have to study to find out how you are going to use the vaccine—find out what the patient's resistance will be. All these things I think eventually will be cleared up. I think there will be a laboratory way of finding out just what we can do with vaccines. I think we are in the beginning of it, and probably a great many of you will do as I have done. I have finally come back to the use of vaccines, and the more I use them the more I am inclined to use them.

DR. EMIL AMBERG, Detroit: We have all enjoyed the classical presentation of Dr. Canfield's paper. He spoke of the thickening of the drum membrane of the middle ear. It has been shown by Bezold that this thickening is enormous, and it has also been shown that the early incision of the drum membrane does away to some extent with this thickening.

The doctor touched upon a very interesting point concerning the spreading of the disease beyond apparently healthy bone. This is a great trouble we have to contend with in mastoid infection. If the disease would spread by continuation only it would be a very easy matter to cure mastoid infections. We have some help in detecting these detached places of infection by the aid of the X-ray.

As far as the complete mastoid operation is concerned, one should be a little critical. Of course the main factor is, as Schwartz once told me, to remove all diseased bone. I once visited the old gentleman in Halle. He was very abrupt, and young as I was I did not take kindly to his manner. He asked me, "Did you come to Halle to see the clinic or to see me?" I answered that I came to Halle to see him and to see the clinic. He was very nice after that, and invited me to come the next Monday to see Doctor R—— do a mastoid operation in which he would remove all the diseased bone—that that was the crux of the situation, to remove all of the diseased bone. It remains for us to find out where the diseased bone is. If, for instance, we have an abscessed cavity, an empyema the origin of which we can explain very well, taking into consideration also the clinical symptoms before the operation and perhaps the X-ray picture—that is one class of case. And then we have as a rule simply to drain that empyema and the patient is cured.

One point should be emphasized, and that is the character of the odor of the discharge. Of course we know that sometimes there may be an offensive discharge that clears up after cleaning the ears—patients are perhaps negligent and allow an accumulation of pus to remain in the ear. But if we have a chronic mastoiditis we will have an offensive odor, which if it does not improve after one or two treatments, should warn us that there is something behind it. I had a case the other day—the boy's mother said his ear had been running since he was a little child. He is now ten years old. He had an osteo-cholesteatoma of the middle bone, and at operation we found the lateral sinus exposed at least one-sixth inch. We did not expose the lateral sinus—the suppuration had done that. This boy perhaps in the course of six months or a year might have had either an extra dural abscess in the posterior fossa, or might have suffered from a sinus thrombosis.

Concerning the meninges, there are a great many cases of

meningitis which do not come from the ear—not all cases can be traced to middle ear suppuration. We have tubercular meningitis, we have pneumococcal meningitis, and it has been shown in the literature that the ear may become involved secondarily—that we may have the meningitis first and the ear trouble secondarily. This of course should not throw us off our guard in considering meningitis as a complication of middle ear disease.

So far as the healing of the radical mastoid operation is concerned, sometimes we have to be satisfied if we have healing by epidermization of the lower tympanic cavity. This is nice, but if we have mucous healing we should be satisfied, too.

I would like to take issue to some extent with my friend, Dr. Goux, concerning vaccines. Perhaps I was a little frightened. I had a patient in which the subjective symptoms were improved by vaccines, but the objective did not tally with the subjective. This is a point that is to be taken into consideration, and until the time comes when this question can be illuminated I will not be as optimistic as Doctor Goux.

DR. B. N. COLVER, Battle Creek: I am interested in Dr. Canfield's point in regard to the removal of all the diseased bone, and also in Doctor Amberg's remarks. I would be very glad to have Doctor Canfield go further with this anatomical operation in closing.

He mentioned particularly the deep cells that might be left in the roof of the zygoma. There are two other areas I have seen left where the cholesteomata originated. One is the group of cells between the ——— and the lateral sinus posterior to the floor of the fossa; the other is the portion of the sigmoid sinus between the trigastric fossa and the sigmoid, where the cells continue posteriorly some little distance deeper than the superficial group of pneumatic cells.

DR. C. H. BAKER, Bay City: I think Doctor Amberg has taken a very pessimistic view of the situation as regards the progress of medicine in our specialty, the ear. When you stop to think of conditions in the days of Hippocrates and of Perez, and how few Hippocrates and Perez there were, and how few ever found the lesions there were, then look over the field now and see the great development there has been and what a wide field is being covered—I think the prospects for the next century are certainly very favorable for an advancement which will put in the shade everything done before.

In regard to the cases of the type of which Doctor Bernstein spoke, where he found cholesteomata developing again and again in new areas and where he was obliged to operate repeatedly, I have in one or two instances succeeded by a very simple procedure in keeping them under control and curing them. One was the application of a very dilute solution of iodine in alcohol. I gave it to the patient for his own use and let him apply it with a pledget of cotton on a probe. That has controlled the cholesteomata in a number of my cases or prevented its development.

In regard to Doctor Goux's experience with vaccines, mine is the same—sometimes you get brilliant results and you think you have the right thing, and the next case, which looks exactly identical, you do not get any result whatever, or an adverse result. I think one difficulty is that most of us have not the time or the facilities for the cultural investigation which is necessary. In other words, we do not make blood tests and see what the resistance is, or the fixation tests, or the white corpuscles, or what is still more important in a good many cases, to see whether the blood is the carrier of the germs of infection. If we could make these examinations in all of our cases I do not think it would take very long to clear up the vaccine question.

DR. MYRON METZENBAUM, Cleveland, Ohio: I have certainly enjoyed this classical presentation of Doctor Canfield. I hoped, on the subject of the pathology of mastoiditis, he would have referred to his own inflexible rule to operate a mastoid early so as to prevent this gross pathology which the paper deals with. About twenty-five years ago, when appendectomies was first made known to the general surgeon, and for ten years thereafter, the great debate was—when to operate. It varied from the minute you make the diagnosis to the interim of attack and later when an abscess forms, until today I believe the consensus of surgical opinion is to operate an appendicitis as early as the diagnosis can be established. I think at Camp Greenleaf, under the direction of Colonel Seale Harris, the rule was that every soldier should have his mastoid opened if the ear did not show marked improvement from a bacteriological standpoint as well as clinically, in six to ten days. I think the results as to later complications were very good.

The prevention of the pathology is probably far more important than the cure of it. I do not believe the otologists, at least in this country, have come to as decisive opinions in relation to when to operate a mastoid case as the general surgeon in regard to the operation for appendicitis. Nowadays, with the aid of the stereoscopic X-ray pictures of both sides of the mastoid, which enables you to compare their relative density, you get an insight into the condition of the mastoid that you could not have otherwise, and in a picture which shows the one side cloudy, even if it is apparent on the third to sixth day, it seems needless to wait to see if the ear will get well. It might get well from a clinical standpoint for the time being, but there is more likely to be some functional disturbance of the auricles of the ear if the case is not operated. At least in our city there seems to be a rule that if the patient shows no improvement from the first to the tenth day, he is considered a subject for operation. If he does not improve very materially within three weeks, he surely should be operated, and no patient should go longer than six weeks if you know what the condition of the discharge is. I think the experience of most men is that if the operation is performed relatively early there is generally better hearing than if the operation is postponed. The danger of other complications arising from the ear that continues to discharge would be minimized by early operation, but I would like to throw a lot of shrapnel into the meeting when this is finished by discussing the question of when to operate a mastoid.

DR. FERRIS N. SMITH, Grand Rapids: I have nothing to say about Doctor Canfield's paper, except to commend it as a very finished presentation of the subject of pathology.

In regard to Doctor Amberg's paper, I think we can sum up the whole thing by saying that the large number of procedures which are used in common practice for the care of a suppurating otitis is evidence sufficient of the scant appreciation we have of the condition going on in the ear and the proper treatment for it. If there is any condition in medicine for which there is advocated a large number of treatments or preventive procedures, it is generally a condition about which we know little or have a poor conception concerning. It does seem to me if ear abscesses were regarded as abscesses in other parts of the body, it would be more simple. The general surgeon when he opens an abscess does not syringe it with every possible concoction he can lay his hands on; he opens the abscess freely enough to drain properly, drains it and expects it to heal in the course of time. I think the average middle ear which is opened at the proper time and treated as abscesses in the soft parts of the body, will heal all right. Of course an abscess in the middle ear is not quite analogous, because it is in a box-like cavity. I do not want to open up the subject of the proper management of the ear at the stage when you get a serous discharge or the stage when you get a purulent discharge, because that has been thrashed out and you would not care to hear it. So far as abscesses in a bony cavity are concerned, the surgical practice is different. Your general surgeon in dealing with abscesses of the long bone opens them up, cleans them out, and expects them to heal. That is what happens in a case of simple mastoid, and if the cavity is thoroughly cleaned out and the wound left so that the soft parts can come in contact with the bony surface, you may expect healing. I do not think there is anything very weird about it. I think it is foolish to use any kind of irritating antiseptics in the middle ear, and that many of the cases which go to mastoid operation are forced there by the specialist who puts these antiseptics in the middle ear.

DR. R. S. GOUX: I want to correct the impression that I advocate the use of vaccines in all cases. If you have a case of necrosis, I do not think vaccines will cure these cases.

DR. R. B. CANFIELD, Ann Arbor: I want to agree with the conclusions that Doctor Amberg has reached in his essay. It seems to me we have learned very little since the time of Esculapius. We have learned many details and a good deal about the pathology, but we have not been able to get this across to our students or to the profession. We have not taught the general practitioner much, if anything, of the treatment of suppurative diseases of the ear. I am amazed and chagrined to see my own students send me back cases in bad condition which they could easily have taken care of themselves in the early phase and which they should have recognized. They have passed their examinations and gone out into the practice of medicine without knowing much about it, or at least they do not show it. I think if we should disseminate through the profession the knowledge of ear disease that Hippocrates had, we would do a great deal.

The doctor made a very good point when he spoke of the necessity of rest. If we had taught the general practitioner to put the case of earache to bed, we would have taught him a great deal. If we had but one method of treatment to use in acute ear trouble, I would say rest in bed should be that one. Of course drainage goes without saying, but rest in bed I really believe in acute inflammatory conditions of the middle ear, before perforation, is more useful than any other one thing. If all these people were put to bed and kept quiet, fewer would go to mastoid operation than now, when after their ears are opened they are allowed to move around.

So many topics aside from those mentioned in these two papers have been discussed that I take advantage of this opportunity in closing the discussion. I would like to take issue with Doctor Amberg on the matter of the X-ray. I do not know whether I can get my stand on the X-ray across to you or not. I am just as enthusiastic a supporter of the X-ray as anyone, but I depreciate the fact that patients are sent to the X-ray laboratory without having been carefully examined by the clinician, and the diagnosis left to the radiographer and his statement taken as being the last word on the pathological condition of the patient. I believe that the well-trained otologist ought not to find it necessary to have recourse to the X-ray in making a diagnosis of mastoid disease—either as to whether it is present, as to its extent, or the indications for treatment. We have so repeatedly seen the stereoscopic picture of the mastoid lead men astray, that personally I do not care about the X-ray report. I am not egotistical about it, but I do feel that no radiographer can tell me very much about the pathological condition of the mastoid in suppurative disease. We have been led astray by it; we have been told that it was healthy when it was filled with pus; we have been told the ear was normal when it was discharging, and anyhow, the X-ray plate is simply a record of the density of the bone, as to whether it transmits light readily or not. It is convenient often to tell us what pathological changes are taking place, but not honestly and accurately what is there. So I am not strong for the X-ray examination in mastoid disease. Of course, the difficulties of the radiographer are perfectly plain to all of us, and the different densities in the same process are clear to us. But let us go the ancient's one better by teaching our students what everybody ought to know about suppurative otitis media, by making careful clinical examinations and learning ourselves what is going on in the bone and not let somebody else tell us about it, and finally, by using good common sense in the care of these people.

I do not know just what Doctor Colver meant by asking me to discuss the anatomical operation, but I believe it is almost always quite possible to eradicate the diseased bone in a mastoid if we destroy and remove all the pneumatic structure which is accessible. If at the time the mastoid is excavated—and this is done thoroughly—and extension to the neighboring structures has not taken place, then I think it will not take place. I make an effort in all mastoid surgery to remove all the pneumatic structure, and I am especially careful if the bone happens to be luetic in character. If it is it transmits infection more easily and in such mastoids one finds many small vascular channels connecting the cranial sinuses. So it is worth while to be very meticulous in the toilet of your operation.

DR. EMIL AMBERG, Detroit: In regard to the matter of rest—do not think the general surgeon with a diagnosis of appendicitis lets the patient walk around—he puts him to bed, and we know that the peritoneum is very much more resistant to the infections than the meninges are. I am glad that Doctor Canfield mentioned the X-ray examination of the mastoid. Several years ago I read a paper in which I drew nine conclusions about the X-ray, and I am glad to say they have held. The points are these:

In a chronic middle ear suppuration or mastoid the X-ray plate is of little value because we have a dense bone and we cannot see in the X-ray plate what is going on around or behind the dense bone. In acute middle ear suppuration, without mastoid complications, the value is sometimes doubtful, too. Of course the X-ray man distinguishes first, second and third degrees, but the rule should be to consider first the clinical symptoms and then the X-ray plate. If the clinical symptoms speak for an operation and the X-ray does not speak for it, I operate. If the clinical symptoms do not speak for an operation and the X-ray plate—in a case of acute mastoiditis or a confirmed discharging ear—fails to show distinct changes of a certain type, then I go in. Doctor Densch of New York, who has had a great deal of experience, cites a number of cases in which the X-ray was of material benefit to him in locating the diseased area which he would otherwise have overlooked. I think these were cases in the New York Eye and Ear Infirmary.

There is one point, and that is that in reading the mastoid plates you have to read your own plates. You should always work with the same Roentgenologist. I do not rely very much on the judgment of the Roentgenologist as far as the X-ray plate is concerned, because in my subconscious mind I always have the clinical symptoms to correlate with the X-ray picture. But I think Doctor Canfield's remarks should be listened to very carefully, and I want to emphasize them for one reason—that you should not send a patient to the Roentgenologist and then rely on the reading of this specialist, because he has not the knowledge of the case that you have. We have to take the whole picture of the mastoid into consideration, and the X-ray is only one part of it.

Doctor Baker raised the question of whose work shall endure—what mountain tops, so to speak, shall shine in the future. I think we will have to wait some fifteen hundred years, when somebody will be reading a paper similar to these, and I am sure Doctor Baker's name will be mentioned.

DR. HAROLD WILSON: I am indebted to you for this honor, for which I am deeply grateful. It was thrust upon me in my absence, and that is the only excuse I can make.

If an address from the incoming Chairman is in order, I would like to raise the question of the X-ray and say that I have formulated my opinion, too. In chronic mastoid I agree with Doctor Amberg that it is of very little if any importance. In acute mastoid I would make two divisions—children and adults; then young children with chronic mastoids, which is in the same category as adults—it is not necessary. So under these three heads I think we can say we have included all of the subject of the X-ray.

I think I can explain the value of vaccines. You know in certain Church ceremonies there is a laying on of hands, and the virtue is in who does it. If I were to baptize your children they would not go to Heaven; but if I were ordained and sprinkled water on their heads that water would have a peculiar quality which otherwise it would not have. In other words, those who are ordained to administer vaccines get results. Unfortunately, I have never been ordained.

CANCER OF THE LIP AND TONGUE.

C. D. BROOKS, M.D.

DETROIT, MICH.

Cancer of the lip and tongue are among the most serious of malignant diseases. The mortality of cancer of the tongue is more than 50 per cent., if treatment is not instituted early and thoroughly, of the lip, between 50 and 60 per cent., unless operation is done before the glands are palpable.

In cancer of the oesophagus and stomach, where the means of making the diagnosis is more or less indirect, depending upon the clinical history, X-ray examination and special examination, etc., we are able to make the diagnosis early and advise the proper treatment for such a condition, yet it is a common thing for a Surgeon to see a patient, with a carcinoma of the stomach, who has had symptoms, referable to it for a much shorter time than the usual case, who presents himself with cancer of the tongue or lip. These cancers can constantly be seen by the patient and his friends and yet it is not an uncommon thing, in fact, unusual that the surgeon sees such cases until they have reached the ulcerative stage and when such is the case, the growth usually is very extensive, with metastatic infection present and infrequently, we also have super-

imposed on the cancer tissue, a secondary infection due to the pyo-genic organisms.

If the medical attendant could always remember, that more than 75 per cent. of cases of cancer of the tongue and lip die a cancer death, if operation is not done before the glands are palpable, if he could see some of the last stages of these patients, who suffer more than from any other malignant disease, he would not be apt to treat it with caustics, cauterization, etc.

It is well known that procrastination has a much higher mortality than carcinoma and nowhere else among the malignant diseases of the body, is the mortality higher, or suffering greater, than the unfortunate person, having a cancer of the tongue or lip.

ETIOLOGY.

As in carcinoma, elsewhere, we find many cases, which are apparently due to repeated and chronic inflammation, and where more than any where else we believe that these can follow upon a chronic irritation. The fact is, that cancer in men and women is ten to one; proving beyond the question of a doubt, that the use of tobacco, would seem to have a large part in this increased cancer in men. The irritation of pipes is a predisposing cause of lip cancer. Teeth which cause oral infection are a very important factor in causing cancer, and men are much more careless in the care of their teeth than women, both by causing irritation and the chronic infection. Prophylaxis, must be instituted early and thoroughly and if all decayed roots are removed, or proper treatment given, by competent dentists, many cancers would not occur.

We must not forget, that a lesion of the tongue or lip which does not heal in two or three weeks, by simple remedies and by removing the cause, when such can be ascertained, is a potential cancer. We would need to differentiate syphilitic sores, tuberculosis and actinomycosis. The diagnosis in actinomycosis, is made by examination of a smear or tissue, which shows the ray fungus, this is not common, either on the lip or the tongue, but is usually found in the jaw. Tubercular lesions are as a rule not common after the age of forty, and are usually secondary to tuberculosis elsewhere. They do not tend to ulcerate as early as in carcinoma and also are rarely found on the tongue.

In syphilitic sores, the pain and irritation are not as great as in cancer, and in primary sores, the result of kissing, the ulcer is found on the tip of the tongue and lip seldom on the lateral margin. The clinical history, the ap-

pearance, and the blood examination, dark field examination, eliminate the syphilitic lesions and in cases where these tests are negative, a thirty day course of anti-syphilitic treatment would serve to eliminate these diseases. We must bear in mind that a carcinoma can, and often is ingrafted upon the scar or ulceration from a syphilitic sore.

Syphilitic lesions of the tongue are usually tertiary, except those primary sores on the tip as mentioned above. The syphilitic ulcer is also less likely to bleed than the cancerous. One of the prominent pre-cancerous conditions is leucoplokia. We would expect a lesion on the lip or tongue to be cancer, if it is unhealed after two or three weeks of simple treatment and after the elimination of the above diseases. In order to cure these patients, by proper treatment, it must be instituted early.

CANCER OF THE TONGUE.

We seldom find cancer of the tongue until after the age of fifty years, but there are of course, exceptions to this rule. The writer, has not seen any cases below the age of 40, but several cases have been reported, both of the lip and tongue, below the age of twenty. Metastatic infection is not as common in carcinoma of the tongue, as in carcinoma of the lip; one reason for this is, as a rule, patients die before such metastasis takes place, and when such metastasis does take place it is usually the adjacent lymph nodes, which are affected. In cases ending fatally, there is usually great secondary infection of neighboring lymphatic glands, so that the patient, is often unable to swallow. Added to this usually there is a secondary infection with pyogenic organisms with a breaking down of the lymphatic glands with accompanying foul smelling discharge, which makes the case very disagreeable to the sufferer and the attendants. When such secondary infection takes place, there is usually a rapid cachexia and the patient soon succumbs.

It is well to remember, that chronic ulcer of the lip or tongue is always cancer until proved otherwise, and the only hope, the patient has, is that diagnosis be made early and the proper treatment instituted. For one to wait for the enlargement of the lymphatic glands is to invite the highest mortality as it is only in the early stage that these growths can be treated with any hope of success, and if they are allowed to go until ulceration takes place, the high mortality should be placed upon whoever is to blame and this is not always the patient.

In his estimation, of the growth of cancer, "Handley" believes that the cells spread equally in all directions, though through the same tissue, that they do not cross into a different tissue, as in muscle. As far as we are able to believe, Handley's assertion remains correct. "Murphy," has shown the marked similarity between infection and carcinoma, as an example, tuberculosis, which is at first local, destroys life, as in carcinoma, by multiplication of its cells, usually the local center of necrosis, like carcinoma, it is transmitted to the neighboring lymphatic glands and may be transmitted by the blood stream to other portions of the body and it destroys life. In malignant diseases, the metastasized cells, always reproduce the pattern of the primary focus.

If we have a squamous called carcinoma of the lip and a metastasi cancer appear in the femur, it would always be a squamous celled carcinoma. In infection, on the other hand, it is the cells of the tissue in which the infection lodges that are active.

If you have tuberculosis of the lip, and get tuberculosis of the femur, it would not be epithelioma cells, but osseous cells, at the point of infection. If the medical profession would always keep in mind that the diagnosis, must be made early, in order that the patient may be saved, and unless diagnosis is made early, the patient will die, he will be less apt to treat these cases with indifference. Time should not be allowed to be lost, by the treatment with caustics and salves and inefficient X-Ray treatments or incomplete surgical proceedings, but radical treatment, must follow an early diagnosis, if a cure is to be expected.

Treatment.—It is the belief of the writer that sections should never be taken for examination, unless the surgeon is prepared to immediately perform an operation. Should such be contemplated, the operation should be performed early, before the ulcerative stage.

The surgeon must not forget, especially in carcinoma of the lip, that although the adjacent lymphatic glands are not palpable, yet upon dissection, he is surprised to find glands as large as "Hazel nuts," which are the site of metastasis infection. At the present time it is doubtful, if operation should be instituted, without a thorough course of pre-operative X-Ray treatments. It has been the practice of the writer for more than three years to have pre-operative X-Ray treatment given in all cases of carcinoma, except perhaps, carcinoma of the stomach. Even here, we advise when-

ever possible, that this be done. In many cases, we believe, that by giving a course of treatment from four to ten, given at intervals of about two weeks, that many cases of apparently in-operable carcinoma, will become operable. Whenever a case presents itself care must be given to get the patient in the best possible condition, by oral hygiene, with the development of the X-Ray, technique, is quite as likely that a thorough course of pre-operative X-ray technique will be more effective with local excision, in carcinoma of the lip, as excision and removal of the glands without pre-operative treatment. In every case it will be better to defer operation, until at least two weeks after the last X-Ray treatment. We advise a radical excision of glands in every epithelioma of the lip and do this as the first step of the operation, doing the local by excision as the 2nd step but at time of immediate operation. It will be well to follow the operation by future X-Ray treatments, beginning on the following day and at intervals of two weeks for several months. I believe better results will be obtained when such cases are followed up for three years, allowing several months between the course of treatment. In cancer of the tongue, without palpable glandular enlargement, and when the growth is not extensive, it is quite as likely that local excision be performed thoroughly with a course of preparation and post-operative treatment, will be followed with as good results as removal of the lateral half or all of the tongue.

When these cases are ulcerative and glandular enlargement has taken place, better results will follow the use of radium and X-ray, than from any operation. In growths on the soft palate, tonsil which are often sarcomatous, better results will be obtained by the use of radium than from operation, in fact such growths appear to be made worse by operation. Cauterization with heat may be used prior to radiation, but it is doubtful value unless done very thoroughly.

It is only by education of the laity, and arousing of the sometime, indifference of the medical profession, and the thorough and radical treatment of all the agents at our command that we can expect to cure patients affected with a disease with such a high mortality.

The proper use of radium and the X-ray, will be found valuable adjuncts in treatment, both pre-operative and post-operative.

641 David Whitney Bldg.

HYSTERECTOMY FOR FIBROID.

HERBERT W. HEWITT, M.D.

DETROIT, MICH.

HISTORICAL.

Heath, in 1843, performed the first abdominal hysterectomy for fibroids. He attempted to ligature the uterine pedicle enmasse, but was unsuccessful, his patient dying from hemorrhage seventeen hours after operation. In 1844, Charles Clay removed a uterus weighing 20 pounds, together with two ovarian tumors weighing twelve pounds. His patient lived for fifteen days, cause of death not stated. In 1846, John Ballinger attempted the separate ligature of arteries during an abdominal hysterectomy. His patient died of peritonitis on the fifth day. Burnham, in 1853, performed the first successful hysterectomy. He ligatured the arteries separately. Kimball, in this same year, also successfully removed the uterus. In 1863, Clay performed his first successful hysterectomy. He ligatured the broad ligaments separately and then placed a suture consisting of three strands of indian hemp on the cervix, immediately above the plane of the os and then divided the cervix. In 1863, Koeberle brought out the "serre-noeud;" in this technic the cervix was transfixed by two threads of twisted iron, the loops of the threads were divided and each double thread was then made to surround one-half of the cervix and the broad ligament on one side, the whole was tightened by means of a "serre-noeud" especially devised for the purpose, then the uterus was amputated. The ends of the threads were brought out through the lower angle of the incision and the whole came away together with the necrotic portion of the stump, about the tenth day. In 1869, Pean introduced the method of fixing the cervical stump in the lower angle of the wound, thus making the stump extraperitoneal. In 1876, Kleberg applied an elastic ligature around the cervix. In 1878, Mikulicz, Schroder and Spencer Wells, independently used the ligature for separate vessels, whilst Spencer Wells and Schroder attempted to cover the stump with peritoneum. In 1887, Eastman recommended the fashioning of anterior and posterior peritoneal flaps for the purpose of covering the cervical stump.

In 1890, Milton performed one of the first of the modern abdominal hysterectomies. He described his technic as follows: Ligature of the broad ligaments, transverse division of the

peritoneum $1\frac{1}{2}$ cm. above the bladder reflection, stripping down of the peritoneum, shaping of a posterior flap, seizing of the uterine vessels with forceps, amputation of the uterus at the level of the internal os, excision of a portion of the mucosa of the cervix, suture of the two cervical flaps, ligature of the uterine arteries, suture of the peritoneal edges over the stump, closure of the wound without drainage. His patient recovered. In the same year, Goffe described a similar method.

In 1891, Chrobak gave a detailed description of the steps of the operation of subtotal hysterectomy, and this technic came to be known throughout Germany as Chrobak's operation. In 1892, Baer did for the English speaking peoples what Chrobak had done for the Germans. Baer has received credit for being the first to tie separately the uterine arteries, but this honor rightly belongs to John Ballinger.

The general adoption of the intraperitoneal technic for hysterectomy, with separate ligature of the uterine arteries dates from 1892. Since that time no essential modification has been made in the technic of subtotal hysterectomy as carried out in ordinary cases.

The first carefully planned *total* hysterectomy was performed by Bardenheuer in 1881. In 1892, Doyen published his method of panhysterectomy, the essential feature of which consisted in the opening of the vagina posterior to the cervix with subsequent dissection carried up on the anterior side of the cervix. In 1894, Pryor reported his method, which consisted of the successive division of the broad ligament and uterine artery of one side, the opening of the vagina of that side and the carrying up of the dissection in the reverse direction on the other side. In 1896, Kelly brought out a method of bisection of the uterus for difficult cases. This method however, has not found a great deal of favor with the profession. Vaginal hysterectomy for fibroid is of historical interest only, and need not be considered here.

SUBTOTAL VS. TOTAL HYSTERECTOMY.

Each operation may have its peculiar indications. Where the cervix is normal and where there is no indication of coexisting malignancy, the majority of gynecologists favor the subtotal operation, for the following reasons:

1. It is easier and requires less time.
2. There is less risk of hemorrhage from the cervical stump.

3. The cervix is cut through at a point which is usually sterile as opposed to incision into a vagina containing all sorts of germs
4. Leaving the cervical stump in situ, affords a much better support for the vagina and bladder, and leaves a deep vagina.
5. There is smaller risk of injury to the uterus.
6. The mortality is lower.

The strongest argument in favor of the complete operation is that excision of the cervix removes all possibility of the development of cervical carcinoma subsequent to operation. It may be stated, however, that carcinoma seldom develops in a nulliparous cervix and that the largest percentage of fibroids occur in nulliparous women. Further, in the subtotal operation, the mucous membrane of the cervix may be entirely removed. The mortality in the complete operation, is sufficiently greater to more than offset the occasional carcinoma that develops in a cervix left in situ in the subtotal operation.

It has been the writer's plan for some time past, to employ the subtotal technic for all suitable cases. As soon as the uterus has been removed, however, it is split open and carefully examined for areas suspicious of malignancy. If such an area is found, then the cervix is completely removed.

CASES SUITABLE FOR HYSTERECTOMY.

Not all fibroids require hysterectomy, or even myomectomy. Neither should fibroids be looked upon as innocent tumors, tumors which will atrophy at the menopause and cause no further "trouble." According to Tracy, 31 per cent. of all fibroids undergo, during their life history, degeneration of some kind. This author is also responsible for the statement that 9 per cent. of all fibroids in women who reach the age of 50, are associated with carcinoma. Noble estimated that in 17 per cent. of all cases fibroids were either directly or indirectly the cause of death of the individual. (Noble reported a series of 3550 cases.) So it appears that we cannot longer look upon fibroids as "innocent tumors," and we must adopt a more radical method of treatment than formerly.

The following plan has been satisfactory to the writer: (1) All women with small, or symptomless fibroids should be kept under observation and should be told the reasons therefor, even though, it does make them "nervous" or hysterical—this is a part of the physician's duty to his patient. (2) All large fibroids, whether causing symptoms or not, should be subjected to hysterectomy, these will sooner or

later cause symptoms. (3) All fibroids causing symptoms should be removed either by myomectomy or hysterectomy. (4) In women of the childbearing age, who wish their reproductive organs preserved, and in whom the fibroids are small and suitable for myomectomy, should have the latter operation done. Although the field of myomectomy appears to be growing smaller and smaller each year, it has its certain indications, one of which is, the subserous tumor in an otherwise normal uterus, and another would be the subserous tumor in a pregnant uterus which causes pain or pressure symptoms. (6) Patients who have been debilitated by fibroids through hemorrhage, heart lesion or what not, to such an extent that they are dangerous surgical risks, should receive the benefit of X-ray, radium or blood transfusion as a preliminary measure. (7) Necrotic submucous fibroids may in many instances be satisfactorily removed per vaginam.

While a small number of so-called "cures" from the use of radium have been published by one or more radium enthusiasts, the writer cannot accept the dictum that all fibroids should be subjected to radium therapy. Fibroids are slow growing tumors. The statement that these tumors may be made to disappear with radium has not as yet been proven, because insufficient time has elapsed since the first cases were treated. Thomas J. Watkins of Chicago who has treated many cases with radium, sums up the matter well when he states:

"It is necessary to have further experience with radium before definite statements as to its use in fibroids can be made."

Subtotal hysterectomy for fibroids has been tediously and carefully developed over a long period of time until at present it is one of the safest and most satisfactory of operations; the mortality in all cases should not exceed 3 per cent., and in ordinary cases should be less than 1 per cent.

TECHNIC.

There are many variations of technic, and the best results will be obtained where the technic is adapted to the individual case. Where the uterus is freely movable it matters little what technic is employed if the basic principles of the operation prevail. These are:

1. Absolute control of hemorrhage.
2. Freedom from injury to bladder and ureters.
3. Proper support left for the bladder and vagina.

4. Prevention of adhesions by careful peritonization of the cut edges of the broad and round ligaments and the cervical stump.

The technic in the early days consisted of ligature of the broad ligaments, transverse division of the peritoneum $1\frac{1}{2}$ cm. above the bladder reflection, stripping down of the peritoneum, shaping of anterior and posterior cervical flaps, seizing of the uterine arteries, amputation of the uterus at the level of the internal os either with a wedged shaped or conical incision into the cervix, thus removing a portion of the cervical mucosa, suture of the cervical flaps, ligature of the uterine arteries, suture of the peritoneal edges over the stump, and closure without drainage. This is still a good technic, but one more step should be added viz. suture of the round ligaments into the cervical stump before the latter is covered by peritoneum. Another method used a great deal and which is suitable for a greater variety of cases is as follows: Clamps are applied to the vessels in the broad ligament beginning with the infundibulo pelvic portion. A large clamp is applied to the tube and round ligament close to the uterus, then the broad ligaments are severed by the clamp and cut method, i. e., clamps are placed successively on the broad ligament and that portion of the latter contained in the clamp cut, then more and more of the broad ligament is grasped and cut until the cervix is reached, when the peritoneum is incised transversely and stripped down. Especial care is taken when the uterine artery is reached to introduce the clamp very close to the uterus so as to avoid injury to the ureter. This technic is then repeated on the opposite side. When the corpus is ready to be amputated, the cervix is cut through either by a V shaped or by a conical incision, thus removing a portion of the cervical mucous membrane. The cervix is next sewed over. The most important part of this technic consists in the in-

troduction of the suture ligature. Beginning at the infundibulo pelvic ligament with a long No. 3 catgut suture the ovarian is sutured and tied, then the broad ligament between this and the round ligament is sutured and tied; after this, successive portions of the broad ligament are caught in the suture-ligature until the cervix is reached and this latter is also caught in the suture. The result is a strong cordlike structure extending from the pelvic brim to the cervix, holding up the cervix and with it the vagina and bladder. Careful peritonization of the cut edges of the broad ligament and cervical stump follows, and the incision closed in the usual manner. In cases where the uterus with the tumor is firmly wedged in the pelvis, or in which an intraligamentary tumor exists, or where adnexal disease and adhesions are present, or a suspected malignancy complicates, a modification of the above technic may be required. A tumor wedged in the pelvis may usually be taken care of by beginning on the side least involved, cutting through the cervix then continuing up the opposite side in the reverse direction i. e. from the cervix up to the infundibulo pelvic ligament. This technic is also suitable for the intraligamentary fibroid.

In cases where adnexal disease and adhesions are present, these complications must first be taken care of; occasionally in this class of cases it may be deemed advisable to resort to bisection of the uterus. Where malignancy is present, there is only one course to pursue viz. complete hysterectomy by a more or less radical method. The simpler cases should have no mortality; the complicated cases will have a small mortality. The poor surgical risks should be very carefully dealt with; these latter should be given blood transfusion, X-ray, radium or whatever treatment seems best to bring them up to a condition in which operation may safely be done.

Holadin and Bile Salt Mixtures.—The period of acceptance having expired, the Council on Pharmacy and Chemistry decided to omit the following mixtures from New and Nonofficial Remedies: Holadin and Bile Salts-Fairchild, Capsules of Bile Salts, Succinate of Soda and Phenolphthalein-Fairchild, Capsules of Holadin, Bile Salts and Phenolphthalein-Fairchild; Capsules of Holadin, Succinate of Soda and Bile Salts-Fairchild. The Council holds that these mixtures are superfluous and that the several substances of which they are composed should be used singly, or at most with greater attention to the individual requirements of the patient than is possible when these fixed mixtures are prescribed. De-

spite that these mixtures have been in use for more than nine years, there is no satisfactory evidence that they possess any advantage over the simple laxatives, or the preparations of bile or pancreatic extract. The dismissal of the holadin and bile salt mixtures does not involve the question of the usefulness of holadin or of bile salts alone. On the contrary, the possible usefulness of these preparations is admitted and they are retained in New and Nonofficial Remedies. It is the combination of holadin, bile salts, sodium succinate and phenolphthalein to which objection is made by the Council (*Rep. Coun. Pharm. Chem.*, 1918, p. 59).

The Journal

OF THE

Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

A. L. Seeley, ChairmanMayville
L. W. TolesLansing
R. S. BucklandBaraga

Editor and Business Manager
FREDERICK C. WARNSHUIS, M.D., F.A.C.S.
Grand Rapids, Mich.

GUY L. CONNOR, M.D., F.A.C.P.
Associate Editor, Detroit.

All communications relative to exchanges, books for review, manuscripts, news, advertising, and subscription are to be addressed to F. C. Warnshuis, M.D., 4th Floor Powers Theater Building, Grand Rapids, Mich.

The Society does not hold itself responsible for opinions expressed in original papers, discussions, communications, or advertisements.

Subscription Price—\$3.50 per year, in advance.

Entered at Grand Rapids, Michigan, Postoffice as second class matter.

Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 26, 1918.

October

Editorials

UNITED STATES PUBLIC HEALTH SERVICE. ITS CARE OF OUR EX-SOLDIERS.

Dr. Arthur M. Hume of Owosso has been appointed Supervisor for Michigan in the work of the U. S. Public Health Service in providing medical, surgical and hospital care for our ex-soldiers.

The United States has been divided into Districts with Michigan, Illinois and Wisconsin comprising the Eighth District with Dr. Bert W. Caldwell as District Supervisor aided by a State Supervisor for each state of the district.

The care of the ex-soldier has been placed with the U. S. Public Health Service and is under the direction of Surgeon General Blue. Through this service, hospital, medical and surgical care is provided, and in addition such medicines and appliances as may be needed for the treatment of those conditions that exist or may arise as the result of the soldier, sailor, marine or nurse's service during the recent war. To receive this care it must be revealed by exam-

ination or physical condition for which treatment is sought that it is the result of service in some branch of our military forces.

The organization in Michigan is practically complete. Hospitals have been selected and a staff of acting assistant surgeons and examiners U. S. P. H. Service, have been appointed to provide this care. Dr. Hume will have direct supervision over these appointees and the work in this state.

Thus the Government has made ample provision for the care of its discharged fighting forces. The service is free, to every ex-soldier, nurse, sailor or marine, providing their condition is one that was incurred in or resulted from their military service. There is no reason why any ex-military person should be deprived of this medical attention. All that is required is to call upon the nearest U. S. Public Health Surgeon, of which every county has one or more appointees, for this work. The appointments were made before the scope of the service was announced, thus avoiding political influence from dominating the selection of the medical staff in each state.

LEGISLATION RELATING TO MICHIGAN'S PROFESSION.

Of vital interest and importance to every doctor in Michigan, the recent laws passed by our last legislature are drawn to your attention. It is essential that you read them carefully, become conversant with their provisions and observe compliance.

The bill relating to venereal diseases contains provisions that make it mandatory for physicians to report all their cases. It also specifies certain requirements to be observed in prescribing and treatment.

AN ACT.

To protect the public health; to prevent the spreading of venereal diseases, to prescribe the duties and powers of the State Department of Health and of local health officers and health boards with reference thereto, and to make an appropriation to carry out the provisions hereof. The People of the State of Michigan enact:

Section 1. The diseases commonly known as syphilis, gonorrhea and chancroid are hereby declared to be dangerous, communicable and infec-

tious diseases and are declared to be subject to all the laws of the State pertaining to such diseases, except as in this act modified or otherwise provided.

Section 2. The State Department of Health is hereby authorized and directed to adopt rules and regulations to prevent the spreading of said diseases to facilitate the proper treatment thereof and to regulate the quarantining and isolation of infected persons. Proper steps should also be taken for the dissemination to the public of such information as is deemed proper and expedient to prevent infection from said diseases. A system of reports for the use of physicians and health officers shall be prescribed, and suitable blanks shall be prepared and furnished to physicians and health officers. A physician or health officer having knowledge of a case of syphilis, gonorrhea or chancroid shall immediately report the same in accordance with the rules and regulations of the State Department of Health and shall give such detailed information as may be required by said Board. All such reports and all records and data of the State Board of Health or any local health officer pertaining to the care and treatment of such diseases are hereby declared not to be public records.

Section 3. The State Department of Health is authorized and empowered to provide for the treatment of cases of syphilis, gonorrhea and chancroid in proper institutions and may make contracts and agreements with the managing board or officers of such institutions for the admission and care of patients hereunder. Any such person while undergoing treatment shall be deemed to be in quarantine in such institution and shall be subject to all laws and regulations pertaining thereto. The State Department of Health is hereby authorized and empowered to employ such assistant inspectors and physicians as may be necessary to carry out the provisions hereof and to fix the compensation of all persons so employed.

Section 4. Any physician or local health officer who fails to report any case of syphilis, gonorrhea or chancroid in accordance with the rules and regulations of the State Department of Health, or any person who while receiving treatment for any such diseases under the direction, supervision and control of the said board as herein contemplated, shall without leave break quarantine and leave the place of treatment, or any persons who shall violate any of the provisions of this act or the rules and regulations of the State Department of Health adopted hereunder shall be guilty of a misdemeanor, and upon conviction shall be liable to a fine of not more than

one thousand dollars or to imprisonment in the county jail for not more than one year, or to both such fine and imprisonment in the discretion of the court.

Section 5. After October first, nineteen hundred nineteen, it shall be unlawful for any druggist, pharmacist, or other person to sell, barter, or give away any drug, medicine, or other remedy whatsoever for the treatment of any of the diseases specified in section one hereof, except upon the prescription of a duly registered and practicing physician. Such prescription shall be marked "C. V. D." and shall set forth the name and address of the patient and the date when given. All prescriptions filled by any druggist or pharmacist hereunder shall be numbered consecutively, and shall be kept on file for a period of not less than two years. Each prescription shall have stamped or written thereon the date of filling. All such prescriptions so kept on file shall be subject to inspection by the prosecuting attorney of the county, or by any duly authorized police officer or by any representative or inspector of the State Department of Health. On the first day of each month each said druggist and pharmacist shall make a detailed report to the State Health Department in such form as may be prescribed thereby, covering such prescriptions. No physician, druggist or pharmacist shall administer any treatment or remedy whatsoever for any of said diseases; nor shall any physician sell or give to a patient so affected any drug, remedy or medicine therefor: Provided, That a duly registered and practicing physician may give office treatments: Provided further, That any physician in any town within this State may fill a prescription, given to a patient affected with any disease specified in section one, if there is no drug store or pharmacy conducted within a distance of five miles therefrom or he is the authorized physician of any corporation who dispenses drugs or medicines to the employees of said corporation. All such prescriptions so filled by any physician shall be immediately reported to the State Health Department, and shall be kept on file by the physician, subject to inspection in the same manner as is above provided for the inspection of similar prescriptions filled by druggists and pharmacists. Any physician, druggist, pharmacist, or other persons violating any of the provisions of this section shall be deemed to be guilty of a misdemeanor, and shall be subject to the penalty hereinbefore provided in section five. Any such violation by physician, druggist or pharmacist shall also be deemed sufficient reason for revoking the license granted thereto.

Section 6. There are hereby appropriated from the general fund for the use of the State Department of Health, for the purposes of carrying out the provisions of this act, for the fiscal year ending June thirty, nineteen hundred twenty, the sum of one hundred fifty thousand dollars; and for the fiscal year ending June thirty, nineteen hundred twenty-one, the sum of one hundred fifty thousand dollars, for the purposes and in the following amounts:

Personal service (salaries and wages):

	For the Fiscal Yr. 1919-20	For the Fiscal Yr. 1920-21
Clerks (9 at \$1,000 each, per year)	\$9,000	\$9,000
Clerk (1 at \$1,100 per year) ..	1,100	1,100
Clerks (4 at \$1,200 each, per year)	4,800	4,800
Clerks (part time, 3 at \$400 each, per year)	1,200	1,200
Director social service dept. ..	1,800	1,800
Assistant to secretary	1,800	1,800
Matrons and attendants	1,200	1,200
Totals for personal service ..	\$20,900	\$20,900
Supplies	\$ 1,350	\$ 1,350
Stationery, books and paper ..	400	400
Equipment and furniture ..	50	50
Printing and advertising ..	925	925
Transportation, telephone and telegraph	9,700	9,700
Hospital care and treatment ..	116,613	116,613
Fixed charges	62	62
Totals	\$150,000	\$150,000

Each of said amounts shall be used solely for the specific purposes herein stated.

Section 7. The amounts hereby appropriated shall be paid out of the State treasury, and the disbursing officer of the State Department of Health shall render his accounts therefor, at such times and such manner as is or may be provided by law.

Section 8. All fees or other moneys received by said institution shall be forwarded to the State Treasurer each month and shall be by said treasurer deposited in the State Treasury to be disbursed in such manner and for such purposes as may be provided by law.

Section 9. The Auditor General shall incorporate in the State tax for the years nineteen hundred nineteen and nineteen hundred twenty, sufficient amounts to reimburse the general fund for the appropriations hereby made.

This act is ordered to take immediate effect.

AN ACT

To prohibit the employment of persons affected with infectious or venereal disease in places where cigars are manufactured.

The People of the State of Michigan enact:

Section 1. No person who is affected with any infectious disease, or with any venereal disease in a communicable form, shall work, or be permitted to work, in any place where cigars are manufactured. Whenever required by any local health officer, any person employed in such place shall submit to a physical examination by such officer, or by some physician designated by such person so employed. If as a result of such examination, such person shall be found to be affected with any infectious disease, or with any venereal disease in a communicable form, such employment shall immediately cease and such person shall not be permitted to work in any such place.

Section 2. Any person knowingly affected with any infectious disease, or with any venereal disease in a communicable form, who shall work in any place defined in section one, and any person knowingly employing or permitting such person to work in such place, shall be deemed guilty of a misdemeanor, and upon conviction, shall be punished by a fine not exceeding two hundred fifty dollars or by imprisonment not exceeding one year, or by both such fine and imprisonment in the discretion of the court.

AN ACT

To prohibit the employment of persons affected with infectious or venereal disease in places where food or drink is manufactured, prepared, served or sold.

The People of the State of Michigan enact:

Section 1. No person who is affected with any infectious disease, or with any venereal disease in a communicable form, shall work or be permitted to work in any place where food or drink is prepared, cooked, mixed, baked, exposed, bottled, packed, handled, stored, manufactured, offered for sale or sold. Whenever required by any local health officer, any person employed in any such place shall submit to a physical examination by such officer, or by some physician designated by such person so employed. If as a result of such examination, such person shall be found to be affected with any infectious disease, or with any venereal disease in a communicable form, such employment shall immediately cease and such person shall not be permitted to work in any such place.

Section 2. Any person, knowingly affected with any infectious disease, or with any venereal disease in a communicable form, who shall work in

any place defined in section one, and any person knowingly employing or permitting such person to work in such place, shall be deemed guilty of a misdemeanor, and, upon conviction, shall be punished by a fine not exceeding two hundred and fifty dollars or by imprisonment not exceeding one year, or by both such fine and imprisonment in the discretion of the court.

This act is ordered to take immediate effect.

AN ACT

To provide for the punishment of persons who share in the proceeds of prostitution, and for the competency of certain evidence at the trial thereof.

The People of the State of Michigan enact:

Section 1. Any person who shall knowingly accept, receive, levy or appropriate any money or other valuable thing without consideration from the proceeds of the earnings of any woman engaged in prostitution, or any person knowing a female to be a prostitute, shall levy or derive support and maintenance, in whole or in part from the proceeds of said prostitute, or from moneys loaned or advanced to or charged against her by any keeper, or manager or inmate of a house or other place where prostitution is practiced or allowed, or shall share in such earnings, proceeds or moneys, shall be deemed guilty of a felony, and on conviction thereof, shall be punished by imprisonment for a term of not more than five years. Any such acceptance, receipt, levy or appropriation of such money, or valuable thing, shall, upon proceeding or trial for violation of this section, be presumptive evidence of lack of consideration.

Section 2. Any such female person referred to in the foregoing section shall be a competent witness in any prosecution under this act, to testify for or against the accused as to any transaction, or as to any conversation with the accused, or by him with any person or persons in her presence, notwithstanding her having married the accused before or after the violation of any of the provisions of this act, whether called during the existence of the marriage or after its dissolution.

Doctor, don't fail to read every paragraph of these new laws.

AWAKENING.

Are we awake or awakening to the need of protecting our professional interests as they only can be protected by organizational cooperation?

Are we aware that wonderful changes are being wrought in the commercial and industrial world?

Are we aroused to the fact that as a profession our interests and future are involved in these social changes that are rapidly being formulated?

As one goes about, meets and talks with the men who are moulding public and business policies, as one notes by comparison conditions of last year or two years ago and as they are today, he cannot help but detect the almost revolutionary changes that have taken place and are taking place.

We as doctors are involved in this new state of affairs that surrounds us. Our interests are at stake. Upon our action and attitude depends whether we shall be dictated to or dictate. Only as we recognize our relationship, our future, only as we discuss, plan and inaugurate our new policies and attitudes—only in the degree that we meet these changes—only to that extent will our interests be protected. The conservation of our interests can be best attained through the activity of our county societies.

So we ask are we awake or are we only just awakening? It is within your province to prevent that awakening coming too late by boosting your County Society, aiding in carrying on active live meetings, discussing the problems confronting us and by inducing your fellow practitioners to do likewise. Your activity is imperative; upon you as an individual rests the responsibility of keeping Michigan's profession awake to its interests.

THE LEAGUE OF NATIONS.

For the past few months, we have not been able to pick up any newspaper in the United States without being confronted with a comment pro or con on this vast subject, which in truth so few of us know anything about.

Out of the heterogeneous mass of "information" that has been foisted upon us regarding this weighty problem, we are sure of one thing at least—the sum and substance of the whole thing resolves itself down to one thing—co-operation, yes, the co-operation of governments, the leading powers of the world; framed by men who hold the very destiny of the human race in their grasp; men, who have seen at first hand the abject misery that can accrue from the selfish motives of one nation, or peo-

ple, in their self-centered striving for world dominance.

If international conditions can be benefited by the combined effort of the powers, it stands to reason that the individual, in his own little sphere, can also realize the betterment of his and his neighbors' attitude and standing in the struggle for economic existence, by working with his fellow man instead of against him. The analogous condition between the late world struggle and some of our own little minute existences must be apparent after a little consideration.

We have seen the results obtained by co-operation and working together in other vocations and step by step, we have seen well or-

ganized effort emerge from chaos by the simple means of all working for the same end.

Must the doctors continue to fight a lone hand with their backs to the wall and instead of advancing hand in hand with Father Time, which their training entitles them to, be pushed out of line in the steadily growing parade to a higher degree of efficiency in human endeavor? We know it isn't necessary and so does every member of this society. We want Michigan to carry the banner in this march of the doctor on to victory and when we say Michigan, we mean Michigan to a man. Each one of us for all of us for all time.

Help us to help you.



Oak Grove Hospital

FLINT, MICHIGAN

OAK GROVE AND DR. BURR.

Readers of the Journal have missed from the August number the familiar advertisement of Oak Grove, Flint. Although it is expected that the Hospital will continue in existence for a year, the property will, if present plans do not miscarry, be then sold to the City of Flint for a High School site.

It has long been felt by the Directors that this magnificent tract of land covered with ancient forest trees, so carefully conserved during the thirty years of the Hospital's ownership and practically maintained as a City park in

private hands, should be in the possession of the public in perpetuity. It could scarcely be otherwise. Situated as it is in the midst of a rapidly growing city, it has now become indispensable to the park system.

The embarrassment which the retirement of Oak Grove from the field of psychiatry will entail is very great indeed, and a source of deep regret to its officers, employees, and clientele. It was never as much needed as now but the stress of commercial life and industrial expansion compel as in the case of McLean Hospital, Massachusetts, and Bloomingdale, New York, the abandonment of premises which at

the time of location were suburban and unimportant from the real estate viewpoint. During the twenty-eight years (twenty-five under the present management) since Oak Grove was opened for the reception of patients, above 2,200 have been cared for and in a manner to command public confidence. Its influence has been widely extended and its usefulness has steadily increased. While successful financially speaking it has been the occasion of much satisfaction that the high ideals of its founders have been kept continually in view and that pecuniary considerations have never been permitted to control or indeed to materially affect its professional and philanthropic policies.

With Oak Grove are inextricably linked the names of Dr. George C. Palmer, formerly Superintendent of the Kalamazoo State Hospital, W. G. Vinton, Jas. A. Remick, J. S. Farrand and Thos. Pitts of Detroit, Ex-Governor Jerome of Saginaw, Ex-Governor Begole of Flint, C. T. Mitchell of Hillsdale, J. D. Norton of Pontiac, Dr. Henry M. Hurd of Baltimore, Dr. J. D. Munson of Traverse City, and Dr. E. A. Christian of Pontiac, all at one time or another directly related to State Hospital service; also George B. Remick of Detroit, Justice H. B. Brown of the United States Supreme Court, Wm. L. Smith and Wm. Hamilton of Flint, Dr. J. F. Noyes of Detroit, S. P. Cranage of Bay City, Chas. Stinchfield and Jas. L. Edson of Detroit, and W. W. Crapo of New Bedford, Mass., whose father, Governor Crapo, originally owned the land on which the hospital buildings were erected.

Two former Presidents of the Michigan State Medical Society, Dr. W. H. Sawyer of Hillsdale and Dr. C. B. Burr, the present Medical Director, have been members of the Executive Board. At the time of the Stockholders' annual meeting in July, Dr. Burr, who has been for nearly twenty-five years the Secretary, was elected President of the Corporation.

The *Journal*, and through it, our members regret the passing of this institution for which we have all had such a high regard and respect. It was an institution, no, a home, to which we were able to refer our mental cases with the confidence that the examination, opinion

and treatment would incorporate all that modern psychiatry possessed.

But after all Oak Grove, to most of us, meant Dr. C. B. Burr, whose professional attainments and personality dominated Oak Grove. Dr. Burr needs no eulogy—he has won a place, in the heart of the profession, which is lasting. He has been a frequent contributor to the high class medical publications and has thus passed on his experiences and scientific conclusions. His *Handbook of Psychology* has been of exceptional value to the profession and a fifth edition will soon appear. Dr. Burr will continue to reside in Flint and limit his work to consultations.

Editorial Comments

A residence converted into a hospital by the taking out of two partitions on the north side second floor, the laying of a patent floor cement, the painting with enamel and installation of a sterilizer, instrument cabinet, operating table, etc.; the painting of other rooms, the purchase of hospital beds and stands; putting in an electric call system, with battleship linoleum on the floors; replacing the old kitchen stove with a larger range and the purchase of an ice box; the naming of this renovated old homestead as "Pleasant View," "Maple Grove," "Elmdale" hospital or some other similar name selected to mitigate the name hospital—all this does not make it a hospital in the modern sense of what such an institution must be to be so designated. Neither does the half or a million dollar brick and marble building, with all hospital architectural refinements and equipment imply that it excels or outranks the first described building in the medical and surgical diagnosis and treatment of disease. In brief—the building, whether a remodeled home or specially constructed, does not indicate its standard or justify the name of hospital. Many instances exist where the former is the real hospital and the latter a "sick person's hotel." A hospital's standard is indicated by its statistical records laboratories, staff personnel, case histories and "follow up" results of the treatment administered. For Michigan this standard will prevail in the classification of our hospitals by the Hospital Committee of our Society. The Committee is composed of Drs. Le Fevre, Guy L. Connor, A. M. Hume and D. Emmett Welsh.

Results of their inspection and classification will be published in an early issue.

Time and tide wait for no man, if you're not up with the procession, begin looking around for that old life preserver.

"I have found doctors to be the most cut-throat unethical, selfish, slandering and unprincipled group of professional individuals in this country today. Since the armistice was signed I have noted on frequent occasions their actions that have compelled me to make this appraisal." This was the indictment pronounced as we heard it in the smoking apartment of a Detroit train the first of September. Later we learned that the speaker was an editor of a large daily paper in a metropolitan city and his friend an attorney. No, we didn't join in the conversation or start an argument. Still, we pondered and have been pondering since upon whether we merit this appraisal. We are passing it along for your meditation. Are you doing anything to warrant this pronouncement? Are you doing anything to refute it?

This harping and everlastingly commenting upon the need of active participation in society work through your local county organization is not a pleasant editorial task. Nevertheless it seems that in doing so we succeed in a measure in stimulating a moderate degree of enthusiasm and interest. Frequently it's only very moderate and hardly justifies being termed enthusiasm. Sometimes we admit discouragement and feel that probably a good hard jolt will be beneficial. Said jolt to be caused by everyone indulging in several months of hibernation followed by an awakening that we have lost out, individually, collectively, professionally and financially in our sphere of medicine and surgery in its relationship to the public, state and nation. We preach the need of organizational activity, the need exists, but the response is often very, very feeble. Will someone please rise up and tell us why?

"Tonics and Sedatives" (A. M. A.) is bemoaning the fact of "Land, Land Everywhere, and not a drop to drink." If he is so hard pressed we invite him to sojourn in Michigan awhile—no, not to drink but to drive the bar room cobwebs out of his brain by inhaling pure air, eating delicious fruit, meeting aggressive people and learning how to live. We never did like Chicago and especially the north-side near the lake front where only natives hold "threes," "fours" and full houses. And then who ever heard of "Teeandesslets?" That's a new one, sprung during our absence, and what is stranger still it doesn't seem to be of French origin. But, Oh Hum, some must have something "freakish"

if not in their dress, then in their work. Come on, Brother, speak right up, we realize we have left an opening—but it's our last deal for the consolation "rake in" so shove, Fishman, shove in the blue ones, Goodwin is waiting to horn in also. What? Yes, Michigan we said. (Continued in our next.)

We're waiting for your call. Our cards are on the table. We don't want this to be a game of solitaire. What we want, is action.

Chicago's health authorities activity in preventing the marriage of a man with an open tuberculosis is commendable. The sooner such action becomes nation wide, just so soon will we make marked progress in combatting that disease. Society has the right to protect itself against the weak and unfit. As it exercises that right it will prevent the alarming increase of morons. Chicago's activity should be instituted in Michigan.

Gratiot-Isabella-Clare County Society has attained and maintained an excellent standard of society activity. The result is a group of doctors who are profiting by the splendid meetings that are being held. Secretary Highfield's persistence and capable work is responsible to a large degree for developing the interests and maintaining such a commendable professional cooperation. We have always maintained that a live, aggressive secretary will be found in every county society that is awake and flourishing. If your society is dead or asleep, elect a live secretary and he will wake things up, though sometimes it takes time. However, if he is the right man he will have his society "hitting on all six" before many months pass by.

Our next annual meeting will be held at Kalamazoo. And knowing Kalamazoo doctors as we believe we do, we predict an annual meeting that is going to be of benefit and of interest. From time to time we shall announce plans as they are perfected by our hosts—the Kalamazoo doctors.

Our upper state doctors have finished their heavy resort season work, had their vacation following it, now we want to hear from them by receiving reports of well-attended and profitable county meetings. Now is the time to become re-interested in your local meetings. Secretaries, please send us the reports of your meetings.

The legislative enactment prohibiting the prescribing and dispensing of remedies or drugs by druggists or their clerks for venereal disease be-

comes effective this month. It now devolves upon the profession not only to treat these diseases by accepted modern methods but also to disseminate information that will prevent their spread. An opportunity is thus presented whereby we can do effective work to lessen the evils of this "black plague."

Military Surgeons and Veterans of the Medical Service will hold their annual meeting in St. Louis, October 13-15th. Michigan should be well represented for we have a large number who are eligible to membership in that organization. Dr. Vaughan is President of the Medical Veterans' Association.

Do you want a meeting or re-union of all ex-service men at our Annual Meeting in Kalamazoo? We would like to learn your wishes and offer to assist in arranging for such a meeting providing sufficient interest is shown. Please do not wait, because it takes time to plan for such a meeting and six months is not any too long a time to prepare and execute such plans as will be necessary for a worth-while meeting.

Are we striving in vain for a concerted boost for the profession of Michigan only to find part of the rungs of the ladder missing?

If we are unable to secure replies to three letters from County Secretaries we do not wonder that some county societies are dormant. If your Society has a secretary who is too busy to answer a letter—he is too busy to secure speakers or plan a program for your meetings. So we suggest that you bear this in mind when holding your next annual meeting. Incidentally if you have a good secretary, keep him and show your appreciation by something more than a "vote of thanks." An honorarium, a gift, or some similar token for the work of the past year will please him and cause him to feel like digging in harder next year.

We are ready and eager to help in providing essayists or the arrangement of a clinical meeting for your meetings. Program Committees will have all our facilities available to aid them during the coming year.

Just because the other fellow shows a little extra pep and "get-up-tiveness" don't get sore and commence to knock. A knocking auto engine is sufficient trouble for most of us but deliver us from a "knocking doctor."

A Rally and Reception meeting of Bay County Medical Society will be held at Elk's Temple, Monday evening, September 8th, 1919.

Banquet at Six P. M., after which we will be addressed by the President of Wayne County Medical Society, Dr. Geo. E. McKean, of Detroit.

Subject: The Present, the opportune time for the man in "General Medicine." All returned members from the U. S. Service are cordially asked to be present.

DR. MORTON GALLAGHER,
Secretary and Treasurer.

The above is splendid indication of Bay County members' start for a prosperous year. Similar meetings should ensue in all our counties. We urge officers and program committees to plan and conduct such meetings for their respective societies this month.

A little child shall lead them. The infant prodigy—coordination—is just cutting his eye teeth. Get in the band wagon and go over the top with the bunch.

Many of our returned soldiers are evidencing signs of neuroses of one type or another. When a physician is consulted, unless he is careful, he may attribute the condition to some local condition that is the chief complaint and thus direct treatment and overlook the principle underlying factor. The condition of the patient is aggravated and harm is done. We urge a more careful study of these patients lest we unintentionally encourage a large percentage of disability. Many of these boys, anxious for discharge, covered up their physical condition, thus escaping detection in their final physical examination. They returned home and soon their family or friends detected a gradually increasing set of symptoms functional in origin. It is here that a display of sympathy is so dangerous.

We urge the refrainment of undue sympathy or coddling care. Withhold and tell the family to withhold emotion or anxious concern. Treat the disability as though it were non-existent and direct your efforts to aid the patient to regain his equilibrium. Remember that the majority respond to proper treatment for their psychoneurosis.

We have seen several such cases in the past few weeks. One had been in bed for six weeks with the doctor treating him for heart weakness. Another had been in the hospital for five weeks with treatment for his lungs as the result of "gas." Neither presented heart or lung lesions. The heart case is now walking five miles a day and engaging in other physical exercises and is rapidly improving.

The lung case spent three weeks at a small lake and then felt well enough to go to work.

There have been published a number of excellent articles on War Neuroses and Neuro Circulatory Asthenia. We urge a careful perusal of the literature and an alertness to this feature of the returned soldier problem.

We are in receipt of an advertisement stating: "Carnegie an earnest supporter of Metric Units." We are unable to determine whether this is ante or post mortem information. We await further enlightenment by our "air service."

"Let's Go" was a favorite doughboy expression. It's applicable to our organization right now. "Let's Go" to our County Society meetings and as County Societies "Let's Go" on a series of meetings that will attract and interest every doctor in your vicinity—What do you say?—Let's ALL Go?

Again do we solicit news notes, case reports and personal items. Your comments are also welcome. We want you to have a vital and personal interest in your *Journal*.

Samson was a wonderful guy in his day but since the advent of the safety razor, it's no longer a one man job. It's a case, now, of all the king's horses and all the king's men.

Correspondence

Boyne City, Mich., Sept. 5, 1919.

Dr. F. C. Warnshuis,
c-o The Journal Mich. State Society,
Grand Rapids, Mich.

My Dear Doctor:

In this section we hear a great deal about the system of fee-splitting and this pernicious proposition, from all reports, is most active and no defence can be offered by any person operating such a plan. If it exists and if it is wrong it should be attacked. I would appreciate if you would kindly let me know what position the Michigan State Medical Society takes on this question. The editorial, Eventually, Why Not Now? was fine and gets back to my subject regarding the medical fraternity, being efficient in a moral question of finance as well as scientific.

Trusting I shall have the pleasure of meeting Mr. Harold O. Gurney and with kindest regards.

Yours fraternally,

Harry E. Shaver.

Deaths

Dr. R. R. Lawrence of Hartford, Michigan, died September 10th at the age of 69 years. Doctor Lawrence had been ill but a very short time. He had practiced in Hartford for about forty years and was the oldest physician in the town.

Dr. Lawrence had long been a member of the State Society and also served as Local Surgeon at Hartford for the Pere Marquette Railroad. He is survived by a brother and two cousins.

Following a two day illness, Doctor Charles C. Anderson died at his home, 709 Iroquois avenue, Detroit, Mich.

Dr. Anderson, who was fifty years of age, was a graduate of the Detroit College of Medicine and Surgery, a member of the Detroit Club, and of the Detroit Commandery, No. 1, Knights Templar.

In the death of Dr. George S. Williams, who died August 15th at his home, 63 W. Webster avenue, Muskegon loses one of its most prominent physicians.

Dr. Williams was born in Rome, N. Y., in 1856. He attended the University of Michigan and the Rush Medical College of Chicago, and was a graduate of the latter institution. He is survived by the widow, one sister and one brother.

The deaths of the following doctors, not members of the State Society have been reported to us: Dr. Frank S. Hoag of Elk Rapids, Dr. A. M. Allen of Adrian, and Dr. F. J. Schouten of Holland.

State News Notes

Are you looking for a practice in town of 800 that will pay you \$5,000 cash first year. I collected \$7,800 last year. We have factory employing 50 hands, good schools, Methodist and Baptist churches, electric lighting. Fine state roads. American population. Fees good. Collect 95 per cent. Competition nil. Fine farming country surrounding. Have modern residence and office for sale on easy terms. It will pay you to investigate. c-o Journal.

COLLECTIONS.

Physicians' Bills and Hospital Accounts collected anywhere in Michigan. H. C. VanAken, Lawyer, 309 Post Building, Battle Creek, Michigan. Reference any Bank in Battle Creek.

In honor of the forty-fifth anniversary of his commencement of the practice of medicine, the Houghton County Medical Society Monday night tendered a banquet to Dr. J. E. Scallon of Hancock. It was given at the Onigaming yacht club and was in all respects a function that will be retained long in the memories of those in attendance. Thirty-five medical men of Houghton county, with a small contingent from Keweenaw and Baraga counties were seated.

Dr. W. H. Dodge acted as toastmaster and toasts were proposed in honor of Dr. Scallon by Drs. Simon Levin, A. I. Lawbaugh, J. G. Turner, W. K. West, A. F. Fischer, P. D. Bourland and A. Labine. There was excellent music by Balconi's orchestra, which won high praise from all who heard it.

Dr. Scallon was last on the list of speakers, being called upon to respond to all the many encomiums that were showered upon him by his professional associates old and young. In discussing Dr. Scallon's remarks, the physicians say he never was less witty. He was compelled to bear up under a load of praise and good wishes such as a modest man naturally would stagger under and his remarks were keyed on a dignified note in consequence. He reviewed the forty-five years of his professional life, of the changes and developments of the practice of medicine, the advances in surgery, the discoveries, the revolutions, the steady advance of the profession throughout the world. He addressed himself for a time to the younger physicians with sage observations for their guidance out of the fruits of nearly half a century of striving toward their common goal.

In every way the gathering was a success. The physicians of Houghton county feel that it was an inspiration to them.

Friday evening, Sept. 12, Dr. and Mrs. E. T. Lamb opened their beautiful home to the Medical profession of Gratiot County for a farewell to Dr. E. A. Bagley. At 7 supper was served to 24, after which we moved to the billiard room where Dr. E. H. Foust acted as toastmaster. Dr. I. N. Brainerd, who came to Alma a few weeks after Dr. Bagley, was called on first, then Drs. J. N. Day, A. R. Wheeler, F. J. Graham and N. F. McClinton, who had all known Dr. Bagley from 25 to 30 years, related what an upright, honorable, and ethical practitioner he had been. Always modest and retiring, never capable of stooping to any chicanery to further his own ends. Dr. L. A. Howe of Breckenridge said Dr. Bagley had been his ideal family physician ever since the doctor had treated him when he was a boy of 10.

On behalf of Dr. Bagley's many professional friends, Dr. W. E. Barstow with appropriate remarks presented the doctor with a handsome gold watch engraved "from the Gratiot County Medical Society."

Dr. Bagley is closing up his office to retire after 45 years in practice, 33 years of that in the same office in Alma.

Twenty years ago this fall, the Michigan State Board of Registration in Medicine began its work. The Board at that time was composed of the following members: President, Dr. M. C. Sinclair, Secretary, Dr. B. D. Harison, and Doctors A. W. Alvord, William Bell, B. Whelan, Albert Lodge, H. Haze, J. Kost, Samuel Bell and Z. L. Baldwin. During these twenty years the following doctors have been president of this board: M. C. Sinclair, William Bell, J. H. Cowell, Oscar LeSure, H. C. Maynard, A. Nyland and George LeFevre. Doctor B. D. Harison has been its secretary throughout the whole twenty years. The physicians who were members of this board for eight years or more are Doctors A. Nyland, William Bell, H. C. Maynard, A. W. Alvord, J. H. Cowell, A. M. Hume and J. L. Campbell. Twenty-seven physicians have been members of this board at one time or another during its twenty years of life.

Thos. L. Hills, formerly holding the chair of Bacteriology in Idaho University and later in the Central Laboratory of the A. E. F. in Dijon, France, is now located in Grand Rapids. Dr. Hills is Director of the Western Michigan Clinical Laboratory which has just been opened and whose chosen advertisement appears in this issue.

The Perry Hotel Petoskey has been purchased by the Doctors Reycraft and Nihart and will be remodeled into a hospital building. It will be known as the Petoskey Hospital and will have a bed capacity for 150 patients.

We haven't heard of any Michigan doctors using an airplane for making professional calls. We are anxious to print such a news note just as soon as such an event occurs.

Don't fail to read the editorial page where you will find two new laws providing for treatment and reporting of venereal diseases. Every doctor is involved in the enactments of these two laws.

The Calhoun County Society honored its service men at their first fall meeting. All the ex-service men were called upon for personal experiences drawn from their military life.

Dr. R. J. E. Oden of Cadillac has been appointed consulting surgeon, U. S. Marine Hospital, Chicago, and has also accepted a position on the staff of Augustauna Hospital.

Rudyard, a village of 500 in a very fertile township, near Sault Ste. Marie, is a desirable location. A surrounding population of 2,000 people are without a physician.

Mrs. Earl Bigham, wife of the late Dr. Bigham of Grand Rapids, announces that she has an office chair for sale at a reasonable price.

Dr. F. C. Warnshuis of Grand Rapids has resumed his duties as Chief Surgeon of the Pere Marquette Railway.

Dr. George J. Curry has been appointed city physician of Flint. Dr. Lafon Jones of Flint will be school physician.

Dr. Adeline E. Gurd of St. Clair has been appointed Assistant Professor of Neuro-Pathology, U. of M., Ann Arbor.

Dr. J. J. Holes of Lansing has reopened his office in the Post building and resumed practice.

Dr. David B. Todd of Calumet has removed to Elkhart, Ind.

Dr. C. V. High, Jr., has located in Coleman, succeeding the late Dr. Towsley.

Caseville is in need of a physician.

Dr. Edwin E. Miller of Flint has been awarded the British Military Cross.

Dr. Wm. L. Griffin of Shelby has located in Albion.

Dr. Leon B. Harris has been appointed city physician for Saginaw.

Dr. Faith Hardy has been appointed School Health Inspector for Grand Rapids.

Dr. C. L. Bennett of Gobleville has located in Kalamazoo.

Dr. F. A. Baker, formerly of Rudyard, is taking the three year fellowship course at the Mayo Clinic.

The following locations in Kent County are without a physician: Alto, Cascade, Cannonsburg, Dutton and McCords.

Dr. R. V. Gallagher of Flint, recently discharged from the Medical Corp, has resumed practice.

Dr. Durrell Lane of Port Austin has located in Bad Axe.

Owosso is contemplating the establishment of a local hospital.

Lansing has had plans prepared for the erection of a new Isolation Hospital.

Dr. G. W. Moll of Foster City has located in Escanaba.

The Clinical Congress of Surgeons meets in New York, October 25th.

COUNTY SOCIETY NEWS

It is the Editor's desire to have this department of the Journal contain the report of every meeting that is held by a Local Society. County Secretaries are urged to send in these reports promptly

DICKINSON-IRON COUNTY

For the year to come we are going to try and transform the Dickinson-Iron County Medical Society from a "Dead One" into a real Medical Society. However, this cannot be done unless each member of the Society is willing to do his share toward making the Dickinson-Iron County Medical Society one of the best if not the best County Society in the state. **Will YOU help to make our Society better by attending each meeting and presenting a paper when called upon to do so?** If you will, success is assured us.

The next regular meeting will be held at the Pine Grove Country Club, Iron Mountain, Mich., on Wednesday, Sept. 10, 1919, 3 p. m., at which time Dr. Holmboe will present a paper on "Pre-operative and Post-operative Technique." This will be discussed by two members of the society.

The final discussion of "Increased Fees" will be taken up at this meeting.

If you have not paid your 1919 dues please remit to the Secretary-Treasurer at once so that we may clear our records with the State Society.

Please make a special effort to attend this meeting.

L. E. Bovik, Secretary.

SANILAC COUNTY

The regular meeting of the Sanilac County Medical Society was held in the High School Building, Brown City, on Wednesday, September 10th. President, Dr. J. E. Campbell, called the meeting to order at 2 p. m. Guests of honor were Dr. Angus McLean, Detroit, and Dr. M. E. Oroman, Port Huron. There were over thirty present including members from St. Clair and Lapeer Societies as our guests.

Dr. McLean gave a very interesting and instructive "Resume of the Principles of War Surgery," which was highly appreciated.

Dr. M. E. Oroman, Port Huron, gave a short talk on Tonsillectomy Technique and demonstrated his method by performing an operation upon a patient presented by one of the local doctors.

A very interesting case of Cretinism in a boy 6 years old weighing 100 pounds, was also presented by one of the local physicians.

An unanimous vote of thanks was then accorded Dr. McLean and Dr. Oroman.

Moved, supported and carried that the next meeting be held in Marlette on the second Wednesday in October, after which the meeting terminated. Then the members of the Society and their guests adjourned to the Hotel Carroll where they were entertained by the local doctors of Brown City to an elaborate chicken dinner. After participating of a sumptuous and appetite-inspiring menu and ample justice being done to the creature comforts, a very pleasant hour was spent in sentiment, under the genial guidance of Dr. J. E. Campbell. Much enthusiasm was manifested and it is the consensus of opinion of the members in attendance that this was one of the best meetings ever held under the auspices of the Society.

J. W. Scott, Secretary.

Book Reviews

TUBERCULOSIS OF THE LYMPHATIC SYSTEM. By Walter Bradford Metcalf, M.D., Associate in Clinical Medicine, University of Illinois, etc., Chicago. New York: The Macmillan Co., 1919.

An epitome of recent advances in our knowledge of tuberculous disease is so well presented in this volume, that one feels pleased to be able to call attention to it. The modern idea of childhood infection with all the logical sequelae gains acceptance readily in the mind of the scholar; its reacts in

practise with the greatest delay. The present volume details the practical use to us of the advances.

There is an admirable section on the anatomy of the lymphatics; a strictly modern account of the methods of invasion of the tubercle bacillus; and a careful resume of the pathology of the subject.

The clinical part is found in the Chapters on Diagnosis and Treatment, which are rich in practical suggestions. There is a careful discussion of the use of tuberculin both for diagnosis and treatment. On the whole there is very little opportunity to disagree with the author. Unfortunately when he says of the subcutaneous use of tuberculin for diagnosis, "When used as I have directed, it can never do any harm," some of us can testify otherwise.

Heliotherapy is hardly given the attention it deserves, and the author is evidently not personally experienced in it. The Alpine light treatment is not mentioned. D'Espines' sign is approved but not described. The differential diagnosis from Hodgkin's Disease receives scant notice. Other minor points more or less unavoidable in a new monograph might be mentioned.

The attitude of the author however is so admirable that we readily forgive small omissions in view of his large service to the subject in general. The following quotation is illustrative of this point.

"There is increasing evidence that the so-called 'delicate' and 'frail' child is delicate and frail because of an existing tuberculous tracheo-bronchial adenopathy. The surgeon is slowly giving up the field of tuberculous cervical adenitis. This condition should never be allowed to become a surgical question. Tuberculosis of the lymphatic system especially during childhood, should be considered a serious affection and worthy of our best efforts."

HERBERT M. RICH.

MILK. By Paul G. HEINEMAN, Ph.D., Director of the Laboratories of the United States Standard Serum Company, Woodworth, Wisconsin. Octavo of 684 pages with 237 illustrations. Philadelphia and London: W. B. Saunders Company, 1919. Cloth \$6.00 net.

Those interested in the milk problem, will find that the problems of the subject are covered in this splendid volume. It contains an ample bibliography for further reference and study.

We are certain that this work is bound to be of valuable aid to the profession and all others who have to do with infant feeding and the handling or distribution of milk.

PSYCHIATRIC AND NEUROLOGICAL EXAMINATION METHODS. August Winner, M.D. Translated by Andrew W. Horsholt, M.D., Napa State Hospital. C. V. Mosby Co., St. Louis, Mo. Price \$2.00.

By this translation there is provided Dr. Winner's examination methods and his presentation of the

significance of signs and symptoms. The work will be useful to American psychiatrists, especially in mental clinics and for students.

CEREBROSPINAL FLUID IN HEALTH AND DISEASE.
Abraham Levinson, B.S., M.D., Northwestern University.
Foreword by Ludvig, Hektoen, M.D. Illustrated. C. V.
Mosby Co., St. Louis, Mo. Price \$2.00.

Here is a practical and scientific presentation of a subject that is now receiving considerable attention. The author has handled his subject well. We urgently recommend a close study of this volume for in doing so you will receive practical methods that will be of material aid in your practice.

Miscellany

PSYCHOSES ASSOCIATED WITH INFLUENZA.

Dr. Karl A. Meninger (*Ann. of Neur. & Psych.*, Sept. 1919) draws the following conclusions:

1. Active neurosyphilis may be precipitated by influenza.
2. Hypophrenia may be augmented in degree by influenza.
3. Epilepsy may be altered quantitatively and qualitatively, that is, in the frequency and in the form of attacks, but there were no instances of its initiation by influenza.
4. Delirium tremens and other forms of alcoholic psychoses were quite frequently induced by the added toxemia of influenza but probably in no greater frequency than would obtain in a similarly large number of any acute infectious disease.
5. Of the encephalopathic psychoses the occurrence of Leichter's influenzal hemorrhagic encephalitis with a peculiar psychosis was demonstrated clinically and by necropsy.
6. Delirium remains the most polychromatic and versatile of the mental disease pictures. Its association with influenza is notoriously frequent and its manifestations bewilderingly multiform.
7. Of the psychoses associated with senility and the presenium one rather equivocal case is presented as having been initiated by influenza without previous indications.
8. Schizophrenia, cyclothymic psychosis and psychoneurosis occur following influenza with and without predisposition or previous manifestations.
9. The cases presented may be summarized by paradigms exemplifying the psychiatric effects of influenza.

- a. In the process of Creation:
Normality + Influenza =
Delirium (simple, errant, schizophrenic)

Apoplexy, Atypical Psychosis.
Senile Psychosis (?).
Schizophrenia.
Cyclothymia.
Hysteria.

- b. In the process of Precipitation:

Predisposition + Influenza =
Delirium Tremens.
Schizophrenia.
Cyclothymia.
Psychoneurosis.

- c. In the process of Alteration:

Morosis + Influenza = Imbecility.
Epilepsy + Influenza = Alterations in frequency and type.
Phychopathy + Influenza = Psychosis.
Apparent Normality (latent syphilis) + Influenza = General Paralysis.
Mild Neurosyphilis + Influenza = Advanced Neurosyphilis.

10. Influenza apparently acts on the brain in three ways: to create psychoses, to precipitate psychoses in predisposed subjects and to augment or alter their form where already existent.

PROPAGANDA FOR REFORM.

Arsenoven S. S. and Solution of Arsenic and Mercury not Accepted.—The Council on Pharmacy and Chemistry reports that Arsenoven S. S., sold by the S. S. Products Co., Philadelphia, and Solution of Arsenic and Mercury (formerly called Arseno-Meth-Hyd) of the New York Intravenous Laboratory, New York, are inadmissible to New and Nonofficial Remedies because unwarranted therapeutic claims are made for them and because the names are not descriptive of composition of these preparations. Arsenoven S. S. is claimed to contain dimethylarsinin 15.4 gr., mercury biniodid 1/10 gr., sodium iodid 1/2 grain. Dimethylarsenin is asserted to be similar to sodium cacodylate, but with a more pronounced therapeutic action. Solution of Arsenic and Mercury comes in three dosages, 2 gm., 1.5 gm., and 0.7 gm., respectively. The 2 gm. form is claimed to contain 2 gm. (31 grains) of sodium dimethylarsenate (cacodylate), U.S.P., and mercury iodid 5 gm. (1/12 grain) in 5 c. c. of solution. Both preparations are advised for the treatment of syphilis, intravenously. The report of the Council reminds physicians that cacodylates have been found inefficient as spirocheticides and warns against the abuses—often dangerous—to which patients are frequently subjected when "intravenous therapy" is employed (*Jour. A.M.A.*, Aug. 2, 1919, p. 353).

Hormotone and Hormotone Without Post Pituitary.—The Council on Pharmacy and Chemistry reports that Hormotone of the G. W. Carnrick Company is advertised as "A pluriglandular tonic for asthenic conditions." The same firm also advertises Hormotone Without Post-Pituitary for use "in neurasthenic conditions associated with high blood pressure." These preparations are sold in the form of tablets for oral administration. Each tablet of Hormotone is said to contain 1-10 grain desiccated thyroid and 1-20 grain of entire pituitary together with the hormones of the ovary and testes—the amounts and the form in which the latter are supposed to be present are not given. From this it is seen that the only definite information given the medical profession regarding the composition of Hormotone is that it is a weak thyroid and a still weaker pituitary preparation. Hormotone without Post-Pituitary is said to contain in each tablet 1/10 grain desiccated thyroid, and to "present" "hormone bearing extracts of thyroid, anterior pituitary, ovary, and testes." The Council declared these preparations inadmissible to New and Nonofficial Remedies, because: (1) Their composition is semisecret (2) The therapeutic claims are unwarranted (3) They are sold under names not descriptive of their composition, but suggestive, of their indiscriminate use as "tonics" (4) In the light of our present knowledge, the routine administration of pluriglandular mixtures is irrational (*Jour. A.M.A.*, Aug. 16, 1919, p. 549).

Bromide and Acetanilid Compound.—The period of acceptance having expired for Granular Effervescent Bromide and Acetanilid Compound-Mulford, the Council on Pharmacy and Chemistry directed its omission from New and Nonofficial Remedies because an examination of the available evidence demonstrated that mixtures of this kind are inimical to rational medicine and the public. The use of mixtures of bromide and acetanilid in fixed proportions is irrational and prone to induce their indiscriminate use by the public—and this despite the perfectly frank declaration of the composition of this mixture by the manufacturer (*Rep. Coun. Pharm. Chem.* 1918, p. 58).

Pollen Antigen.—Pollen antigen-Lederle is a pollen extract which represents the pollen of plants blooming in spring and in fall. The Council on Pharmacy and Chemistry declared these preparations inadmissible to New and Nonofficial Remedies because there appeared no warrant for complex pollen preparations representing both spring and fall pollens. In consideration of the essentially experi-

mental status of the use of pollen preparations for the prevention and treatment of "hay-fever," such products should be as simple as possible. Hence pollen protein preparations prepared from the pollen of two or more species of plants are accepted for New and Nonofficial Remedies only if there is evidence that the given combination is rational (*Rep. Coun. Pharm. Chem.*, 1918, p. 65).

Cinchophen: Formerly Atophen.—The Chemical Foundation, Inc., which has purchased some 4,500 German-owned patents, many of them for synthetic drugs, proposes to continue the wise policy of the Federal Trade Commission by requiring that those who receive licenses for the use of patents for synthetic drugs must use a common designation for each drug selected by the foundation. Cinchophen has been selected as the designation for the substance introduced as atophan (also described in the U. S. Pharmacopoeia under "phenylcinchoninic acid"). In consideration of this action on the part of the Chemical Foundation and also because physicians found it difficult to use the pharmacopoeial name phenylcinchoninic acid, the Council on Pharmacy and Chemistry has recognized the contracted term cinchophen as the name for the drug introduced as atophan (*Jour. A.M.A.*, Aug. 9, 1919, p. 427).

Capell's Uroluetic Test.—A "Doctor" H. F. Matthews, representing the Capell Laboratory, Omaha, is demonstrating an asserted new test for syphilis—Capell's Uroluetic test. J. O. Cobb, M.D., Senior Surgeon in Charge U. S. Marine Hospital, Chicago, writes that in a demonstration of the test (which is to be applied to the urine of patients) "Doctor" Matthews was given the same specimen of urine in four different containers, and he read a different degree of reaction for each of them. Capell's Laboratory is apparently conducted by Dr. W. L. Capell. Some years ago, Dr. Capell was connected with a concern known as "Acneine Pharmacal Company." In 1917, W. L. Capell was connected with Capell, Cameron Co., Inc., which was selling "Capell's Uroluetic Test," "Capell's Treatment for Syphilis" and other remedies. The treatment for syphilis (mercarodin) is sold by Capell's Laboratory. It also sells Acneine, which apparently is the same product that was sold in 1906 under the name "Sambu-Co" by the Holtma-Stringer Co. of Omaha. While the Capell Laboratory still sells proprietaries, it appears to be featuring the "Uroluetic Test" at the present time. The test would be important if it was reliable; unfortunately its scientific value to the sufferer is negligible, compared with its economic value to the

exploiter. It is not so much a test for syphilis in the patient as of credulity in the doctor (*Jour. A.M.A.*, Aug. 23, 1919, p. 626).

The Uses of Yeast.—Yeast is one of those remedies that have undergone alternating cycles of use and of disuse; just at present it appears again to be in its ascendancy. Recently renewed attention has been called to its laxative qualities. The much debated question whether yeast can be used as a food, can be answered in the affirmative. However, in view of its laxative action, the amount of yeast which can be ingested is limited. Also, owing to its high nuclein content it is contraindicated in gout. As a source of water soluble growth promoting as well as antineuritic vitamin, yeast has become thoroughly established. However, as common foods contain this vitamin, there is little likelihood of its proving of therapeutic value, since it promotes growth only when stunting is due to lack of vitamins. Yeast has been used as an application in acne, for infected wounds and in leukorrhea. Recently the curative value of the oral administration of yeast in various cutaneous disorders has been reasserted (*Jour. A.M.A.*, Aug. 23, 1919, p. 628).

The Council on Pharmacy and Chemistry.—The profession should recognize that the most important factor in the clearing up of the advertising pages of medical journals has been the Council on Pharmacy and Chemistry of the American Medical Association. The Council has been criticized both by the manufacturer and the profession, but it has gone on doing the work for which it was created. Sometimes the practitioner feels that his clinical experience justifies the use of a preparation which the Council has not found reason to accept. While apparent clinical results may be misinterpreted, the carefully conducted examinations of the Council are likely to be definite and dependable. We are becoming more and more convinced of the unreliability of reports of clinical use by physicians. Practitioners should avail themselves of the Council's investigations by frequent reference to the reports of the Council. If they would keep on hand a copy of New and Nonofficial Remedies for ready reference and prescribe only of the new preparations those that have been accepted by the Council, they would aid materially in the establishment of a scientific and reliable therapeutics (*Jour. Kansas Med. Soc.*, Aug. 1919, p. 193).

S. S. S.—The state of Louisiana has a law prohibiting the sale of venereal disease remedies, except on the written prescription of a licensed physician.

In May of this year, the Bureau of Venereal Diseases of the Louisiana State Board of Health notified the druggists of Louisiana that the sale of "S. S. S." ("Swift's Syphilitic Specific" or "Swift's Sure Specific") would meet with the same law enforcement measures as were being waged against any venereal disease nostrum. The result of this notice was a letter sent to various drug stores of Louisiana by the sales manager of the Swift Specific Company declaring that "S. S. S." is not recommended or advertised as a venereal medicine. A few years ago, "S. S. S." was boldly heralded in newspaper advertisements as a "cure" for syphilis (*Jour. A.M.A.*, Aug. 30, 1919, p. 707).

THE RELATIONSHIP OF CONVULSIONS IN INFANCY AND CHILDHOOD TO EPILEPSY.

John Lovett Morse, M.D., draws the following conclusions:

1. Convulsions which are a manifestation of spasmophilia are not likely to eventuate in epilepsy.
2. Convulsions which occur in the course of whooping cough must always be regarded seriously, as they are quite likely to be followed by epilepsy later.
3. Single convulsions or a series of convulsions occurring at the onset of an acute disease or with an attack of acute indigestion are less likely to be followed by epilepsy than are repeated convulsions during a considerable period or repeated attacks suggesting petit mal.
4. Repeated attacks which would be classified as petit mal or which suggest it, are just as likely to eventuate in epilepsy as repeated attacks of general convulsions.
5. Nothing can be told from the nature of the early attacks as to the nature of the attacks when epilepsy develops later.
6. When an injury to the head has directly preceded the onset of the attacks or there is no apparent cause for the attacks, epilepsy is more probable than when there is an apparent cause, such as indigestion, for each attack.
7. The presence of an apparent cause for the attacks does not exclude epilepsy.
8. The longer the attacks have persisted, the more probable is the diagnosis of epilepsy.
9. General impressions, which cannot be explained, have a certain value in diagnosis.
10. There is no way to determine immediately when a baby or child has a convulsion or has had repeated convulsions or repeated attacks suggesting petit mal, whether it has epilepsy or whether it will develop it later.